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ABSTRACT

This report studies career academies to explore students' and teachers' experiences and to contrast them with those of their peers in regular high school environments. Data are from questionnaires, interviews, and observations of Academy and non-Academy students (835 and 686 respectively) and teachers (65 and 403 respectively). Chapter 2 describes the data sources and research samples and presents analytical issues relevant to data interpretation. Chapter 3 examines the extent to which the career academy approach increases students' self-reported exposure to selected dimensions of school-related support from teachers, peers, parents, and other adults. It reports that students who experience higher levels of support are more likely to give intrinsic motivations for participating in school activities and see strong connections between what they are learning in school and their futures; increases in student motivation are related to higher levels of students' self-reported engagement. Chapter 4 examines the extent to which the career academies provide teachers with supports that enhance their job satisfaction and sense of effectiveness in making a difference in their students' lives. It explores whether the structural changes created by the career academy approach are associated with differences in teachers' level of collaboration with each other, in their classroom resources and control over their work, and in their relationships with students. (Appendixes contain 57 references and data tables.) (YLB)

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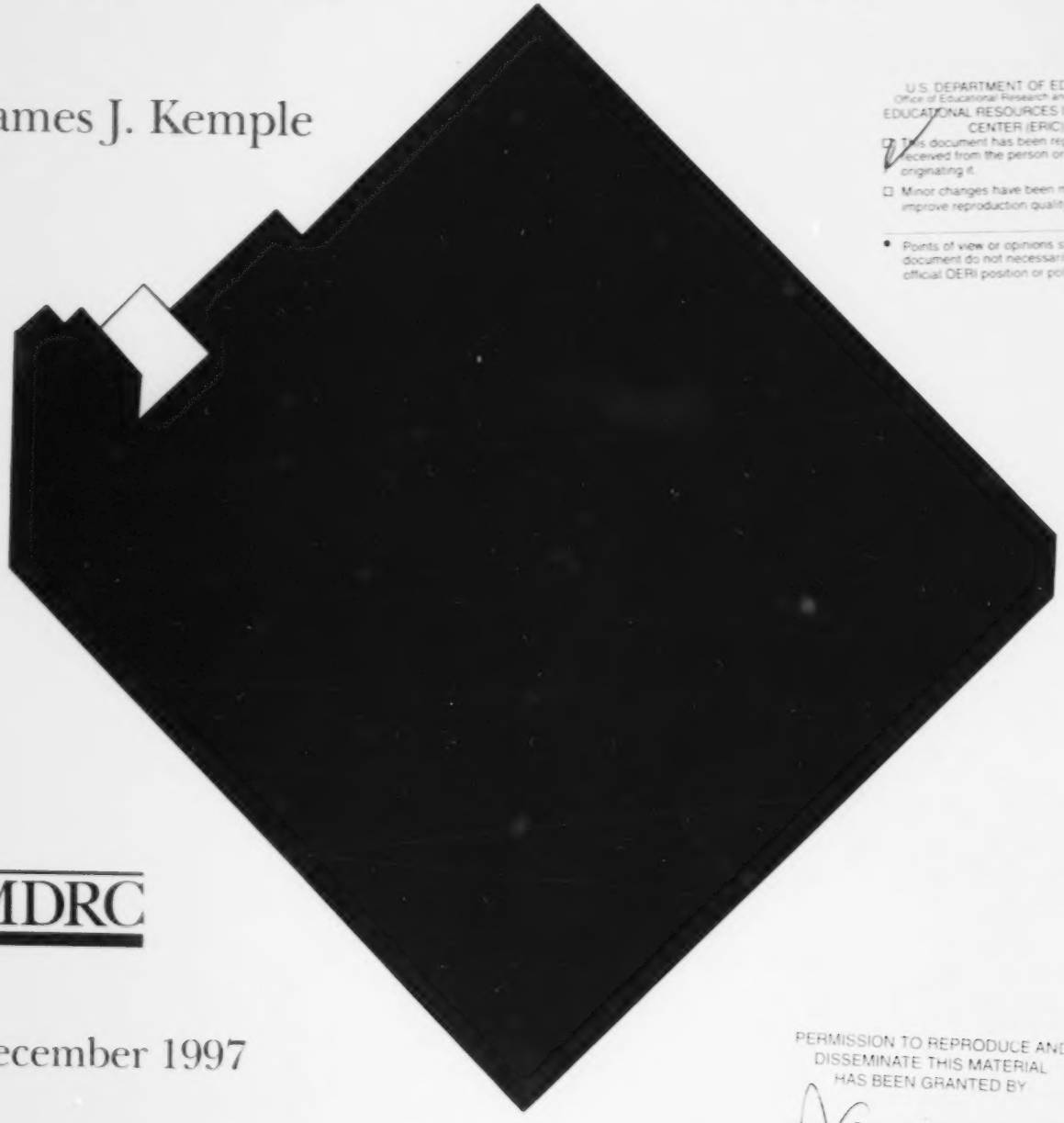
Career Academies

Communities of Support for Students and Teachers: Emerging Findings from a 10-Site Evaluation

James J. Kemple



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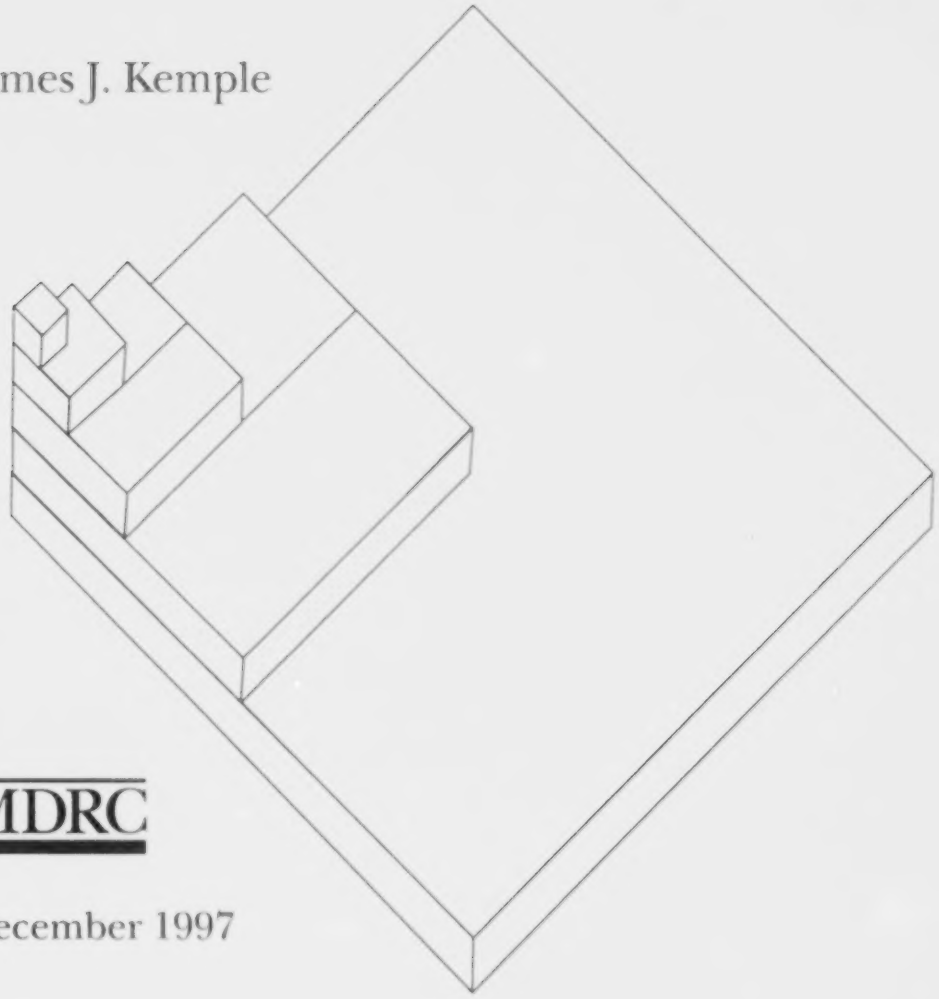
Career Academies

Communities of Support for Students and Teachers: Emerging Findings from a 10-Site Evaluation

James J. Kemple



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Contents

Preface vii
Acknowledgments ix
Executive Summary ES-1

1 Introduction 1

I. The Importance of Supporting Students and Teachers in High School 3
A. Structural Problems in High Schools 4
B. Emphasizing Interpersonal Supports in High Schools 5
II. Career Academies as Communities of Support for Students and Teachers 7
III. The Career Academies Evaluation 10
A. The Impact Study 11
B. The Process and Implementation Study 12
C. Sites Participating in the Career Academies Evaluation 13
IV. The Current Status of the Career Academies Evaluation and an Overview of the Current Report 16
A. Highlights of the First Report 16
B. Overview of This Report 17

2 Data Sources, Research Samples, and Analytic Issues 19

I. The Student School Experience Questionnaire (SEQ) 20
A. Sampling Frame and Response Rates 20
B. Background Characteristics of Students in the SEQ Sample 24
C. Further Notes on the SEQ Sample 30
II. The Career Academies Evaluation Teacher Questionnaire 31
A. Sampling Frame and Response Rates 31
B. Characteristics of Teachers in the Teacher Questionnaire Sample 32
C. Teachers' Workloads 34

3 Career Academies as Communities of Support for Students 38

I. Conceptual Framework for Analyzing Dimensions of School-Related Supports and Their Relationship to Student Motivational Processes and Self-Reported Engagement 39
A. Measures of Constructs in the Conceptual Framework 39
B. Analysis of Relationships Among Interpersonal Supports, Motivational Processes, and Self-Reported Engagement in School 44
C. Analyzing Differences Between Career Academy and Non-Academy Students 45
II. Academy and Non-Academy Students' Ratings of Teacher Support 48
A. Academy and Non-Academy Students' Ratings of Personalized Attention from Teachers 49
B. Academy and Non-Academy Students' Ratings of Teacher Expectations 49
C. Academy and Non-Academy Students' Overall Ratings of Teacher Support 52

III. Academy and Non-Academy Students' Ratings of Peer Engagement and Collaboration and Overall Peer Support 52
A. Peer Engagement 53
B. Peer Collaboration 53
C. Overall Peer Support 56
IV. Motivational Processes and Self-Reported Engagement 56
V. Summary 59

4 **Career Academies as Communities of Support for Teachers** 61
I. Conceptual Framework for Analyzing Factors Related to Teachers' Sense of Effectiveness 62
A. Measures of Constructs in the Conceptual Model 62
B. Results of Analyses of Relationships Among Institutional Supports, Interpersonal Supports, and Attitudes Toward Job 68
II. Differences Between Career Academy and Non-Academy Teachers 70
A. Academy and Non-Academy Teachers' Ratings on Measures of Institutional Supports That Promise Strong Teacher Learning Communities 74
B. Academy and Non-Academy Teachers' Ratings on Measures of Interpersonal Supports That Promote Strong Teacher Learning Communities 75
C. Academy and Non-Academy Teachers' Attitudes Toward Their Jobs 78
III. Summary 78

Appendix A Comparison of Research Groups and Response Analyses for the Student School Experience Questionnaire 80
Appendix B Supplementary Tables for Chapter 3 88
Appendix C Supplementary Tables for Chapter 4 95

References 99

Selected Publications on MDRC Projects 102

Exhibits, Tables, and Figures

Exhibit

1 Names, Locations, and Affiliations of Participating Career Academies ES-3

2 Relationships Among Constructs That Define the Career Academy "Communities of Support" for Students and Teachers ES-6

3 Percentage of Students Who Indicated "High" Ratings on Measures of Interpersonal Support, Motivational Processes, and Engagement, by Career Academy and Non-Academy Groups ES-8

4 Percentage of Career Academy and Non-Academy Teachers Who Indicated "High" Ratings on Measures of Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs ES-10

Table

2.1 Student School Experience Questionnaire Response Rates, by Research Group, Site, and Grade Level 22

2.2 Background Characteristics of Students in the School Experience Questionnaire Sample, by Career Academy and Non-Academy Groups 25

2.3 Background Characteristics of Career Academy and Non-Academy Teachers 33

2.4 Selected Characteristics of Career Academy and Non-Academy Teachers' Workload 35

3.1 Summary Measures of Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement Constructs 43

3.2 Students' Perceptions of Teacher Support, by Career Academy and Non-Academy Groups 50

3.3 Students' Perceptions of Peer Support, by Career Academy and Non-Academy Groups 54

3.4 Percentage of Students Who Indicated High Ratings on Measures of Motivational Processes and Self-Reported Engagement, by Career Academy and Non-Academy Groups 57

4.1 Summary Measures of Teachers' Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs 65

4.2 Percentage of Career Academy and Non-Academy Teachers Who Indicated High Ratings on Measures of Institutional Supports, and Attitudes Toward Their Jobs 72

A.1 Regression Coefficients for the Probability of Being in the Program Group, SEQ Sample (N=1,406) 82

A.2 Response Analysis for the Student School Experience Questionnaire by Research Group, Site, and Grade Level 85

A.3 Regression Coefficients for the Probability of Completing the SEQ, Full Study Sample (N=1,952) 86

B.1 Items from the Student School Experience Questionnaire Used to Create Indicators of Students' Perceptions of Interpersonal Supports, Motivational Processes, and School Engagement 88

B.2 Correlations Among, Parameter Estimates of, and Standard Errors of Estimates from Regression Analysis of Factors Related to Students' Motivational Processes and School Engagement 94

C.1 Items from the Teacher Questionnaire Used to Create Indicators of Teachers' Perceptions of Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs 95

C.2 Correlation Among, Parameter Estimates of, and Standard Errors of Estimates from Regression Analysis of Factors Related to Teachers' Sense of Effectiveness 98

Figure

1.1 Simplified Model of the Career Academy Approach 9

1.2 Names, Locations, and Affiliations of Participating Career Academies 14

3.1 Simplified Conceptual Model Showing Hypothesized Relationships Among Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement 40

3.2 Results of Analyses Showing Relationships Among Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement 46

4.1 Simplified Conceptual Model Showing Hypothesized Relationships Among Teachers' Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs 63

4.2 Results of Analyses Showing Relationships Among Institutional Supports, Interpersonal Supports, and Teachers' Attitudes Toward Their Jobs 69

Preface

The Career Academy approach stands today at the intersection of several prominent trends in education reform. Although they have existed for more than 25 years, Career Academies have gained greater recognition recently as states and school districts have tried to build on the momentum of the high school restructuring and school-to-work transition movements. Interest in Career Academies was also accelerated by the reauthorization of the Carl D. Perkins Vocational and Applied Technology Act in 1990 and the passage of the federal School-to-Work Opportunities Act in 1994. Consistent with the goals of Career Academies, both of these legislative initiatives aim to ensure that high school students graduate with skills they can apply in the labor market and that they have access to clearer pathways from high school to postsecondary education and work.

Like a growing number of restructuring initiatives, Career Academies aim to support more constructive relationships between high school students and teachers. And, the Academies' emphasis on providing students with a strong academic experience while preparing them for life beyond high school is consistent with several provisions in the Perkins Act designed to enhance teaching and learning strategies that integrate academic and occupation-related knowledge and skills. Finally, the Academies' employer partnerships and work-based learning component are directly relevant to the School-to-Work Opportunities Act, which authorized federal funding for states and localities to help schools forge stronger relationships with their communities and local employers.

In 1993, the Manpower Demonstration Research Corporation (MDRC) began an evaluation of the Career Academy approach in 10 sites around the country. Its primary goal is to provide policymakers and educators with definitive evidence about the impact Career Academies have on students' success in high school and their transition to further education and the labor market. It will also offer lessons about how Career Academies operate and are sustained and about the pathways through which they affect student engagement and performance in school.

The current report builds on the foundation laid in MDRC's first report from the evaluation — *Career Academies: Early Implementation Lessons from a 10-Site Evaluation*. Whereas the first report described the structural elements of the Career Academy approach as they had been implemented and sustained in the 10 sites, the current report takes an early look inside the Academies to shed light on the experiences of their students and teachers and to contrast these experiences with those of their peers in the participating high schools. The findings from these two reports suggest that the Career Academy approach holds promise for restructuring high schools with the aim of creating more mutually supportive student and teacher "communities." The first report offered useful lessons from the sites about what it takes to implement the approach and to adapt it to local needs and circumstances. The current report draws on information collected from teachers and from students, most of whom were in the 9th or 10th grade at the time of data collection. It offers important insights into the ways in which Career Academies enhance the institutional and interpersonal supports that are associated with strong teaching and learning communities. While these supports appear to have translated into at least modest increases in student motivation and higher job satisfaction among teachers, we do not yet see significant

enhancements in students' engagement in school (but, in part, this is because the students in the sample were already fairly highly engaged in school).

At this early stage in the evaluation, the initial evidence suggests that the Career Academy approach has the potential to improve high schools. However, it is still too early to tell whether the overall experience will have a significant impact on students' performance in high school and on helping them move into postsecondary education and the labor market. At the time the data for this report were collected, very few of the students had participated in the Academies' work-based learning activities and they had only limited exposure to the integrated academic/vocational curricula. Also, it remains to be seen whether the types of supports discussed in this report will have a cumulative effect on student engagement and performance as they continue over an additional two or three years.

It will be critical to follow students further through their high school years and beyond. Future reports from the evaluation will examine students' exposure to the full range of Career Academy components. They will also include longer follow-up periods to examine the potential cumulative effects the Academies may have on students' progress through high school, graduation, and the transition to postsecondary education and work.

It is our hope that this early look at 10 Career Academies will be useful to educators and policymakers who are involved in school reform efforts across the country.

Judith M. Gueron
President

Acknowledgments

This report is primarily the product of generous contributions of time and information from the hundreds of students and teachers participating in MDRC's Career Academies Evaluation. They have been gracious in allowing MDRC staff to interview them and observe their classrooms and schools, and in their willingness to complete the questionnaires on which much of this report is based. Their experiences and insights taught us a great deal about life in Career Academies and in high schools.

The Career Academies Evaluation would not be possible without the vision and support of the funding organizations, which are listed at the front of the report. The study is also the product of a collaboration among MDRC and the participating Career Academies, high schools, and school districts. The contribution of staff from each of the participating school districts who have played key roles in helping with data collection has been especially valuable.

The research conducted for this report also benefited from the insights and guidance of several key advisors to the evaluation, including: James P. Connell, Robert Crain, Charles Dayton, James McPartland, Richard Murnane, Charles Payne, Robert Peterkin, Marilyn Raby, Francisco Rivera-Batiz, David Stern, and Joan Talbert. Carolyn Eldred played a central role in developing the questionnaires used in the report. James Connell also helped to guide the data analysis and offered useful comments on an earlier draft of this report. The following people have also provided ongoing support and guidance to the study: Carole Lacampagne, Nevzer Stacey, and Irene Harwarth from the U.S. Department of Education's Office of Educational Research and Improvement; Patricia McNeil and Chris Kulick from the U.S. Department of Education's Office of Vocational and Adult Education; J. D. Hoye from the National School-to-Work Office; Raymond Uhalde, David Lah, and Marlin Ferrell from the U.S. Department of Labor; John Dow and Bonnie Silver from the National Academy Foundation; Susan Tidyman from the California Partnership Academies; and Glenn Thomas from the Florida Department of Education.

At MDRC, Marla Sherman and David Navarro, with help from staff in MDRC's data room, coordinated the questionnaire preparation and data processing. Mary Andes, Susan Kagehiro, Rachel Pedraza, and Marilyn Price served as liaisons between MDRC and the sites and led the effort to administer the questionnaires. Lauren Brown assisted with the development of the questionnaires and with almost all of the tasks associated with their administration and the subsequent data processing. Cindy Redcross provided research assistance and coordinated the production of the report. Robert Granger, Rob Ivry, Susan Poglinco, and JoAnn Rock reviewed drafts of the report. Alice Tufel edited the report, and Stephanie Cowell and Patt Pontevolpe prepared the manuscript for publication.

The Author

Executive Summary

In 1993, the Manpower Demonstration Research Corporation (MDRC) began a 10-year evaluation of the Career Academy approach — a widely established school reform initiative that encompasses the key principles of the national school-to-work (or school-to-career) movement. As such, the primary goals of the Career Academy approach are to improve students' performance in high school and to provide them with clearer pathways to post-secondary education and careers. While attempting to create more supportive teaching and learning communities within high schools, Career Academies also seek to integrate academic and vocational instruction and to provide work-based learning opportunities for students, with the aim of preparing them for their lives beyond high school — whether they are going straight into the job market or planning to attend college first.

This report is the second in a series from MDRC's Career Academies Evaluation, which focuses on 10 high schools and their Career Academies from across the country. The first report — *Career Academies: Early Implementation Lessons from a 10-Site Evaluation* — described the 10 Career Academies participating in the study and their local contexts. The current report begins to look inside the participating Career Academies and focuses on the extent to which they function as "communities of support" for students and teachers. For students, such support includes the personalized attention they get from their teachers, their teachers' expectations of them, their fellow classmates' level of engagement in school, and the opportunities they have to collaborate with their peers on school projects. Teachers are supported by, among other things, opportunities for professional collaboration and development, adequate resources, the capacity to influence instructional and administrative decisions, and opportunities to give personalized attention to students. Both this study and previous research have identified these dimensions of support as factors that can have an important effect on both students' motivation and engagement in school and teachers' job satisfaction and sense of whether they are making a difference in their students' lives.

The **key findings** reported here indicate that the Career Academies provide their students and teachers with a greater degree of institutional and interpersonal support than is available to their non-Academy counterparts in the same comprehensive high schools. Students in the early stages of their Academy experience report that they are somewhat more motivated to attend school and that their schoolwork seems more relevant to their future education and career goals. At the same time, while Academy students appear to be highly engaged in school, they do not appear to be more engaged than their non-Academy counterparts. Academy teachers were more likely to see themselves as belonging to a strong professional community and indicated higher levels of job satisfaction than their non-Academy counterparts in the same high schools. Nevertheless, Academy and non-Academy teachers were about equally likely to rate themselves as being highly effective with their students.

These early benchmarks of contrast between the Academy and non-Academy school environments, as viewed through the eyes of their students and teachers, should be interpreted with

13

caution. Most important, the current report focuses on only a limited set of student experiences that are likely to be affected by the Career Academies. Many of the students participating in the study had gone through only one high school year at the time the data for this report were collected, and only about one-third of the students had reached their second year in the study. Thus, they had little or no exposure to some of the key Academy components, particularly its integrated academic/occupational curricula and work-based learning opportunities. Future reports will examine a broader set of indicators of student performance and engagement in school and at work, and will capture the cumulative effects, if any, as they accrue through high school and beyond.

What Is a Career Academy?

Career Academies are organized as "schools-within-schools" in which groups of students (usually 30 to 60 per grade in grades 9 through 12 or 10 through 12) take several classes together each year with the same group of teachers. The goal of the school-within-a-school is to promote more constructive relationships between and among teachers and students and thereby to increase students' engagement and success in high school. Each Academy focuses on a career theme, such as business and finance, electronics, or health occupations, to provide opportunities for teachers and students to integrate academic and occupation-related classes in an effort to enhance their relevance to the real world while preserving academic rigor. Academies also forge partnerships with local employers from a particular field to help plan and guide the program, and to serve as a source of adult mentors and work internships for the students.

While Career Academies have existed for over 25 years, the approach has gained greater prominence recently as states and school districts have increased their efforts to restructure high schools. This restructuring is aimed at supporting students academically while providing them with marketable skills, work-based learning experiences, and smoother transitions to post-secondary education and productive employment. Interest in Career Academies was further accelerated with the passage of the federal School-to-Work Opportunities Act in 1994. The Act provided federal funding and support for states and localities to take a systemic approach to helping schools forge stronger partnerships with their communities and with local employers, and to create opportunities for students to begin making connections between schooling and their career aspirations. The core components of the Career Academy approach reflect many of the cornerstones of the new legislation and its objectives as well as many key dimensions of other reform efforts to improve high schools. While there are no reliable data on the total number of Career Academy programs nationally, current estimates suggest that Career Academies have been established in at least 600 to 700 high schools.

The Career Academies Evaluation

Ten high schools and their Career Academies, representing most of the major, established networks of Career Academies across the country, are participating in this study. Their names, locations, and affiliations are shown in Exhibit 1. Most of the nine school districts in the

Exhibit 1

Career Academies Evaluation

Names, Locations, and Affiliations of Participating Career Academies

	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, Pennsylvania	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, Maryland	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, Florida	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, Florida	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, Texas	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, California	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, California	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85

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evaluation (one district includes two of the participating Career Academies) are in urban areas or small cities and enroll substantial percentages of black and Hispanic students compared with national averages. The participating school districts also have, on average, higher dropout rates, unemployment rates, and percentages of low-income families. Most Career Academies across the country are located in such districts, and MDRC purposely sought such sites for the Career Academies Evaluation. Each of the participating Career Academies attempted to serve a wide range of students, including those who were doing well in school and those who appeared to be at risk of dropping out.

As they entered the study, each of the 10 sites had already established the basic Career Academy components mentioned above: a school-within-a-school organization, an integrated academic/occupational curriculum, and partnerships with local employers. This combination of features was not available elsewhere in the participating high schools. Exhibit 1 indicates that the Career Academies in the study reflect a range of occupational themes: three are in the business and finance fields; three focus on high-technology areas such as electronics and aerospace technology; and one each is in the fields of health occupations, public service, travel and tourism, and video technology.

The Career Academies Evaluation will follow nearly 2,000 students from the 10 sites through their high school years and for up to three years following their scheduled graduation from high school. Each of these students was identified by the participating Career Academies as eligible for participation in their programs. Because each of the programs received applications from more students than they could serve, however, approximately 1,100 of these students were randomly selected to enroll in the programs; the remaining students were not selected and chose, or were assigned, to attend other regular high school programs. This random assignment research design provides a unique foundation for an unusually rigorous assessment of the Academies' effects on student outcomes.

This report draws on students' and teachers' responses to questionnaires they completed during their first or second year in the study. From the full sample, 1,406 students and 468 teachers in the Academy and non-Academy environments of the 10 high schools completed a questionnaire. They were asked a range of questions about their experiences, behaviors, and attitudes in school, and their responses were then used to create indicators of factors that were likely to affect the students' engagement and performance. Most of the analyses conducted for this report focus on the proportion of students or teachers who gave consistently "high" ratings across the groups of questionnaire items. In general, a "high" rating indicates that a given respondent consistently and strongly affirmed a group of statements about his or her experiences, behaviors, and attitudes. The report also draws on qualitative information collected during on-site interviews with teachers and students and observations of Academy classes and activities.

It is important to note that there were no systematic differences in the background characteristics of the Academy and non-Academy students who completed the questionnaire. This increases the confidence one may have that any differences that emerge based on the questionnaire data can be attributed to the difference between the Academy and non-Academy environments. Nonetheless, the results should be interpreted somewhat cautiously because there may be

some unmeasured differences between the background characteristics of Academy and non-Academy students who completed a questionnaire. Also, there were some modest differences between the characteristics of the students who completed a questionnaire and those students who did not.

Academy and non-Academy teachers who completed the questionnaire had several similar key background characteristics. However, some measured differences emerged for other characteristics, for which statistical controls were applied in the analysis. Thus, while differences between Academy and non-Academy teachers that emerge from the questionnaire data may be partly attributable to the Academies, they may also be the result of some underlying differences in the unmeasured characteristics of the two groups of teachers. In general, the findings from the comparison of Academy and non-Academy teachers is intended to highlight differences in the teaching and learning opportunities being made available to Academy and non-Academy students.

The Career Academies Evaluation is being supported by the U.S. Departments of Education and Labor, 15 private funders, and the 10 sites participating in the study.

Career Academies as Communities of Support

Where the first report from the evaluation was concerned with the structural elements of the Career Academy approach as they had been implemented and sustained in the 10 sites, the current report takes an early look inside the Academies to shed light on the experiences of their students and teachers and to contrast these experiences with those of their peers in the participating high schools. In particular, the report focuses on whether the Career Academies serve as "communities of support" for students and teachers. In the context of this report, such communities provide a range of institutional and interpersonal supports that aim to enhance student motivation and engagement in school and to help teachers optimize their students' learning experiences.

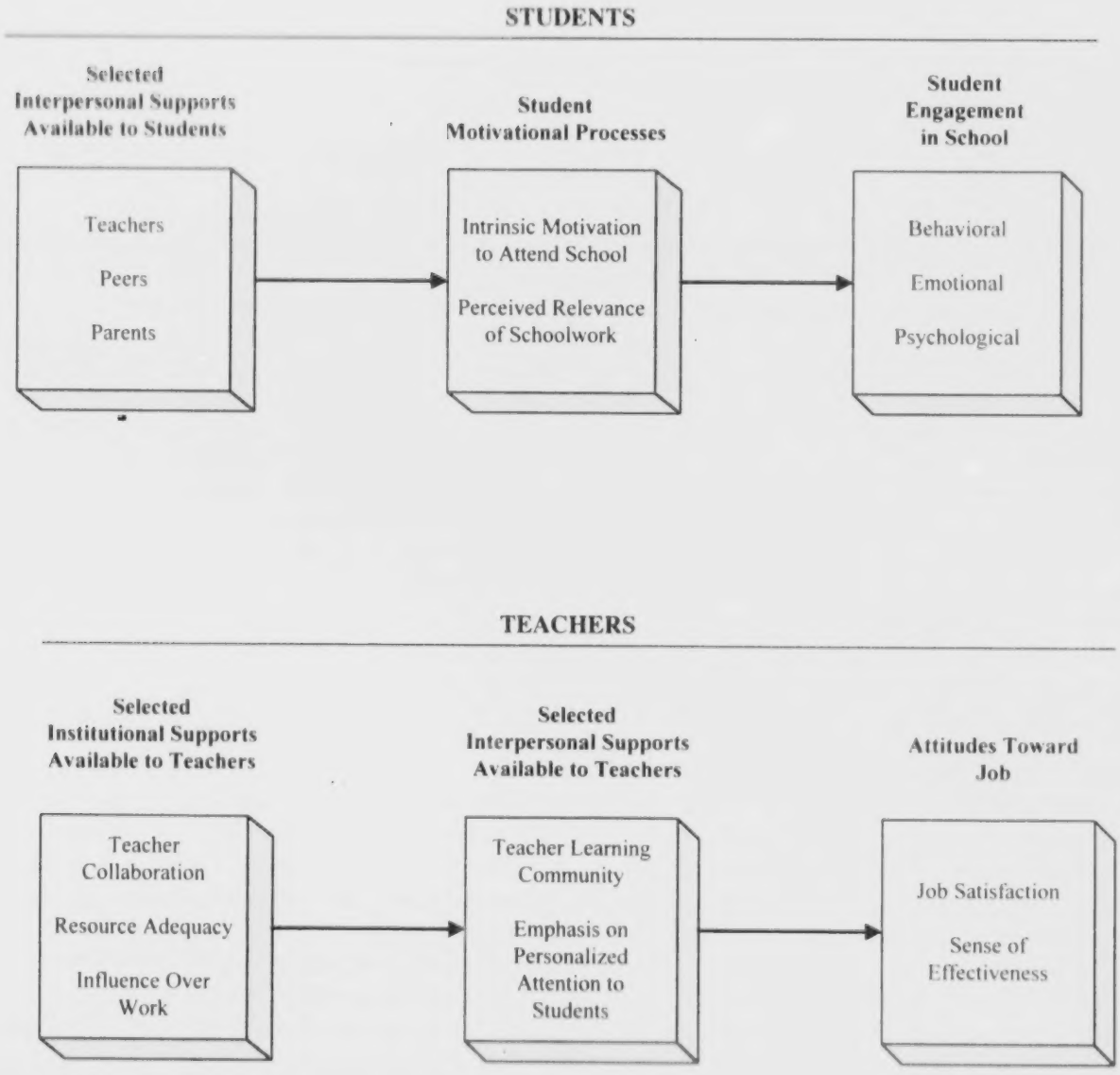
Exhibit 2 shows two simplified conceptual models of how selected institutional and interpersonal supports are hypothesized to affect student engagement and teacher effectiveness, respectively. For students, the Career Academy approach (particularly its school-within-a-school organization) is hypothesized to enhance support from teachers, peers, and parents which will help motivate them to do well and lead to greater engagement. Similarly, the Career Academy approach is hypothesized to offer teachers institutional supports (such as teacher collaboration, resources, and ability to influence work), which enhance certain interpersonal supports and, ultimately, increase their job satisfaction and sense of effectiveness. Measures of the constructs in Exhibit 2 were created from the groups of student and teacher questionnaire items described above.

All of the differences between Academy and non-Academy participants discussed below are statistically significant, except when noted otherwise. Statistically significant differences are those that are least likely to be due to chance.

Exhibit 2

Career Academies Evaluation

Relationships Among Constructs That Define the Career Academy "Communities of Support" for Students and Teachers



How Do Career Academies Support Students?

- **Career Academies increased, at least modestly, the support students receive from their teachers and peers.**

The first set of bars in Exhibit 3 indicates that Academy students were more likely than their non-Academy counterparts to report that their teachers give them personalized attention and have high expectations of them. The second set of bars shows that Academy students were also more likely to see their classmates as being engaged in school and to work with them on school projects and assignments. In general, these findings suggest that the structural features of the Career Academy approach — particularly, in this case, the school-within-a-school organization — offer students a greater degree of support from teachers and peers than is available to similar students in the regular high school environments.

- **These supports appear to have enhanced student motivation and increased the connections they see between what they are learning in school and their longer-term education and career interests.**

The third set of bars in Exhibit 3 indicates that Academy students were slightly more likely than non-Academy students to indicate that they were intrinsically motivated to attend school. That is, these students reported that they attend school primarily because they like it and are interested in what they are learning, rather than because they must or primarily in response to external pressures or the negative consequences of not attending. The fourth set of bars indicates a further difference between Academy and non-Academy students: Academy students were more likely to perceive a strong connection between what they are learning in school and their longer-term education and career interests.

- **Although most Academy students indicated that they were highly engaged in school, they were no more likely to do so than their non-Academy peers.**

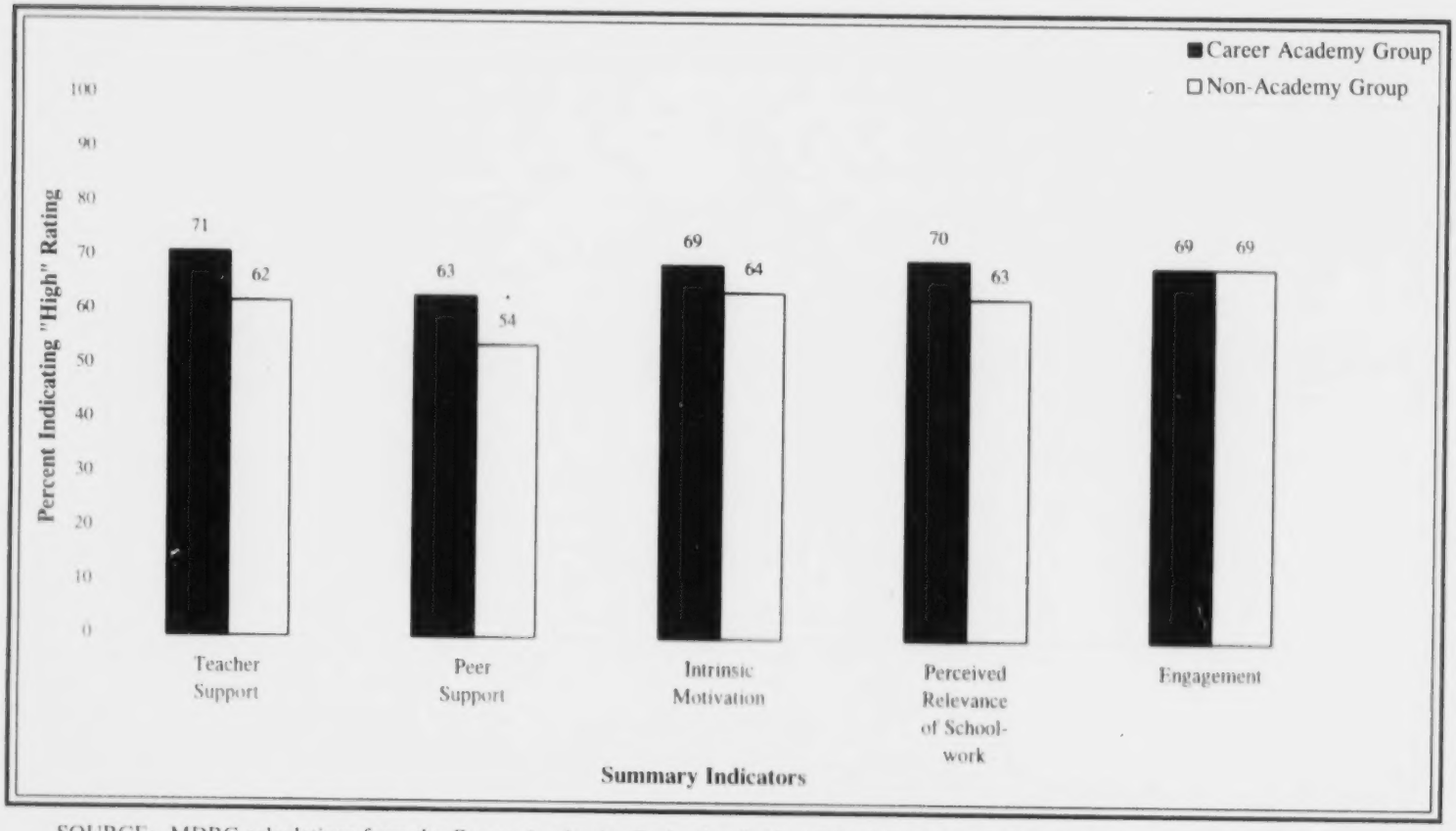
In this analysis, "engagement in school" includes students' self-reported behavior (such as being prepared for and paying attention in class, exerting effort in class, and doing homework), emotional state when in school, and psychological commitment to doing well in school. Further analyses of the questionnaire showed that, for both Academy and non-Academy students, both the interpersonal supports and the motivational processes were related to this self-reported measure of school engagement. Thus, the Academy students' higher levels of support, motivation, and belief that their schoolwork has future relevance should translate into higher levels of engagement in school. However, as indicated in Exhibit 3, the questionnaire data indicate that, at this early point in the follow-up period, the Academy and non-Academy students reported similar levels of behavioral, psychological, and emotional engagement. In all, about two-thirds of both Academy and non-Academy students were highly engaged in school, indicating that students were likely to be engaged in school at this point in their high school careers even if they were not in the program.

At the time the data for this report were collected, most students in the study sample had

Exhibit 3

Career Academies Evaluation

Percentage of Students Who Indicated "High" Ratings on Measures of Interpersonal Supports, Motivational Processes, and Engagement, by Career Academy and Non-Academy Groups



SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: The measures shown above are summaries of students' ratings of several items from the Student School Experience Questionnaire.

A two-tailed t-test was applied to differences between Career Academy and non-Academy groups. All differences are statistically significant at the 5 percent level or lower with the exception of the engagement measure, for which there was no difference between the two groups.

little exposure to the integrated academic and occupation-related curricula, had not yet participated in work-based internships, and had only a few opportunities to participate in activities that would prepare them for post-secondary education and careers. Thus, it is too early to tell whether the full Career Academy program will have a cumulative effect on student engagement and performance.

How Do Career Academies Support Teachers?

- **Academy teachers indicate that they have more opportunities to collaborate with colleagues and to influence decisions in key areas of their work.**

The differences shown in the first three sets of bars in Exhibit 4 indicate the extent to which Career Academy teachers are exposed to a variety of institutional supports that are not as widely available in the regular high school environment. Resources include materials such as books and supplies, as well as nonmaterial resources including time and spaces to get together with colleagues. The teacher collaboration construct captures the degree to which teachers meet regularly to discuss instructional strategies, student-related issues, and curriculum integration. Areas of work over which teachers report a high degree of influence include instruction-related areas such as determining the content of professional development activities and selecting books, materials, and course content, and administrative areas such as disciplinary policies, elements of the daily schedule, and selecting students for their classes. Career Academy teachers were more likely than their non-Academy peers to give high ratings to each of these dimensions of institutional support. These variables are important because they are likely to be most sensitive to organizational and policy changes reflected in the Career Academy approach.

- **Career Academy teachers were more likely than non-Academy teachers to indicate that they were part of a strong teacher learning community and that they emphasized personalized attention to their students.**

The fourth set of bars in Exhibit 4 shows that Academy teachers were more likely than their non-Academy counterparts to give a high rating on the indicators of a strong teacher learning community. Key dimensions of a strong teacher learning community include whether teachers have opportunities to enhance subject matter knowledge and instructional strategies and to continue their professional growth. They also include indicators of whether teachers work closely with colleagues who are continually learning and seeking new ideas and who support their efforts to develop professionally.

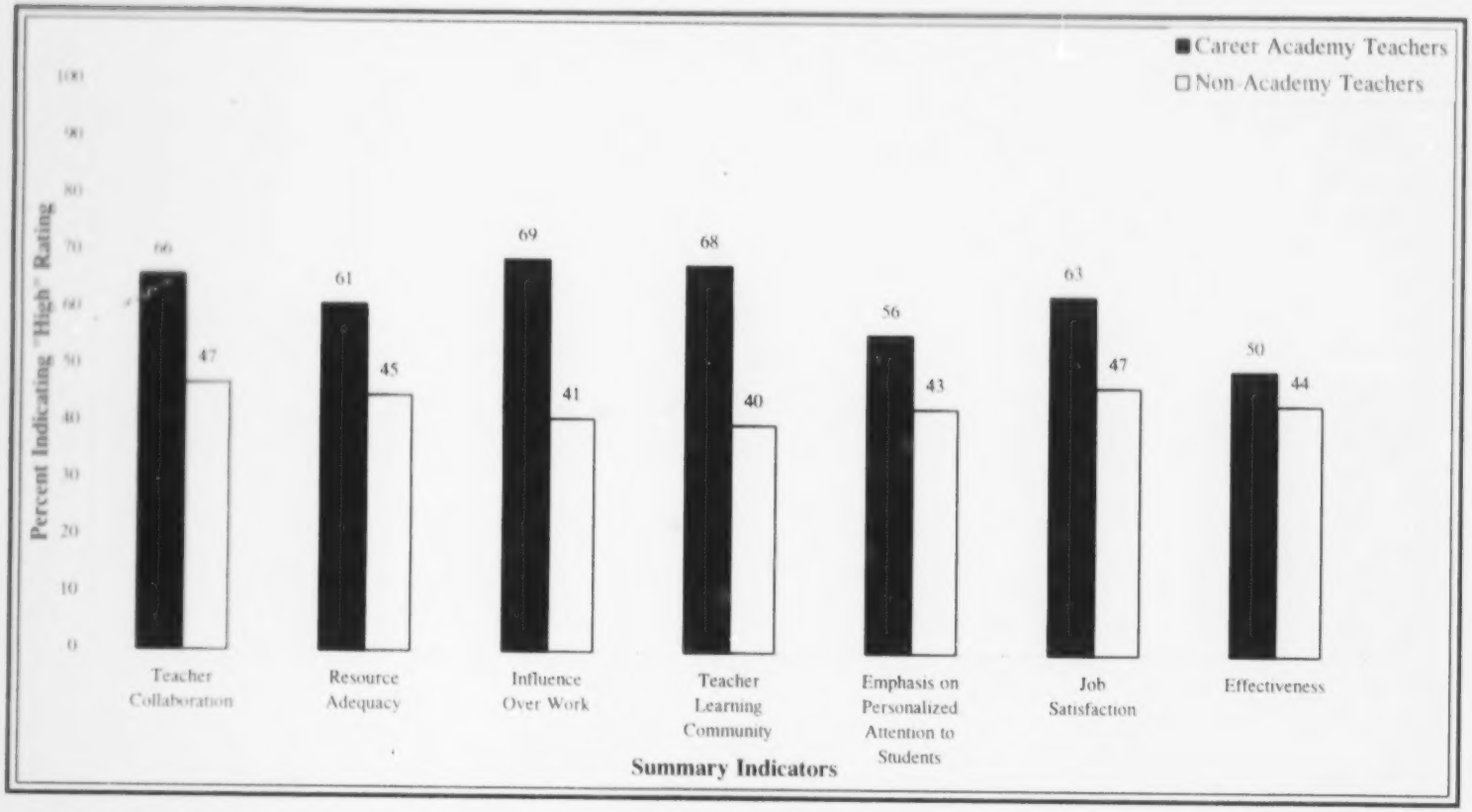
The fifth set of bars in Exhibit 4 indicates that Career Academy teachers were more likely than their non-Academy colleagues to place a high level of emphasis on personalized attention to students. This indicator includes the extent to which they try to be accessible to students, go out of their way to help them both academically and personally in school, and take an interest in students' achievements and concerns beyond the classroom.

- **Career Academy teachers expressed higher levels of job satisfaction than non-Academy teachers.**

Exhibit 4

Career Academies Evaluation

Percentage of Career Academy and Non-Academy Teachers Who Indicated "High" Ratings on Measures of Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs



SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: The measures shown above are summaries of teachers' ratings of several items from the Teacher Questionnaire.

A two-tailed t-test was applied to differences between Career Academy and non-Academy teachers. All differences are statistically significant at the 10 percent level or lower with the exception of the effectiveness measure, for which the difference between the two groups was not statistically significant.

Academy teachers were more likely than non-Academy teachers to indicate a high level of satisfaction with their jobs (see Exhibit 4). For the purposes of this analysis, teachers' satisfaction with their jobs includes the extent to which they were satisfied with the school learning environment, the intellectual challenge, and the enforcement of disciplinary policies. It also includes teachers' satisfaction with their work overall and whether they are likely to continue teaching.

- **Academy and non-Academy teachers were about equally likely to report a high level of effectiveness.**

As shown in Exhibit 4, about half of the Career Academy teachers indicated that they felt they were highly effective in their jobs, compared with 44 percent of the non-Academy teachers — not a statistically significant difference. This indicator is intended to capture teachers' sense of the extent to which they believe that they can control or influence their students' success in school and their sense of whether they are, in fact, making a difference in their students' lives. Further analysis did not reveal any systematic differences between Academy and non-Academy teachers in the individual components of the self-reported effectiveness measure.

In short, Academy teachers' enhanced support, emphasis on personalized attention to students, and job satisfaction do not appear to have translated into systematic increases in their sense of effectiveness. One hypothesis for explaining this pattern of findings is that Career Academy and non-Academy teachers may have differing definitions of "effectiveness." In other words, Academy students may be performing better than non-Academy students, but the Academy teachers may be expecting more from their Academy students and from themselves. The self-reported measure of teacher effectiveness used in this analysis may mask differences in other measures of effectiveness such as students' assessments of their school experiences or assessments of student success indicated by school records. Also, the lack of difference in Academy and non-Academy teachers' ratings of personal effectiveness should be interpreted cautiously because the measure does not take into account the possibility that Academy teachers may consider a greater number of performance dimensions as relevant. For example, interviews with Career Academy teachers revealed that many of them felt they should provide Academy students with a range of interpersonal and employability skills as well as academic skills.

Finally, although the enhanced supports and satisfaction that Academy teachers experience may be necessary conditions for greater effectiveness, they may not be sufficient. Academy teachers highlighted several significant challenges that must be met to attain the ideals represented by the Career Academy model. For example, many teachers focused on the difficulty of integrating a rigorous vocational curriculum with a relevant and demanding academic curriculum and ensuring that the Academy's work-based learning component provides students with exposure to the real world and a rich learning experience.

Exploring Further Implications of the Findings

Findings from the first two reports from the Career Academies Evaluation suggest that the approach holds some promise for restructuring high schools with the aim of creating more

supportive teaching and learning communities for students and teachers. Each of the sites in the study has demonstrated the feasibility of implementing and sustaining the core structural elements of the Career Academy approach and adapting them to their local needs and circumstances. The first report highlights some of the challenges involved in undertaking this restructuring. The current report indicates that, within the confines of these new structural arrangements, Academy students and teachers experience a greater degree of institutional and interpersonal support than do their peers in the regular high school environments. This enhanced support appears to have translated into somewhat higher levels of motivation among Academy students and higher levels of job satisfaction among Academy teachers. However, while students in their initial years in the Academy programs appear to be highly engaged in school, they are no more engaged than their non-Academy peers.

While supports discussed in this report may provide some of the necessary conditions for improving students' performance in high school and guiding them toward clearer pathways to post-secondary education and careers, it is still too early to tell whether the overall Career Academy experience is sufficient to accomplish these goals. At this early stage in the evaluation, very few of the students had participated in the Academies' work-based learning activities (which usually occur during or just after the 11th-grade year), and students' exposure to the occupational theme and integrated curricula was still relatively limited. Also, as the types of supports noted earlier continue over two or three years, they could have a cumulative effect on student engagement and other outcomes such as progress toward graduation and advancement to higher-level academic and occupation-related courses. As a result, it is critical to follow students further through their high school years and beyond. Future reports from the evaluation will examine students' exposure to the Career Academies' integrated curricula and work-based learning activities and will include longer follow-up periods to examine the potential cumulative effects the Academies may have on students. Specifically, future reports will provide findings on whether the Career Academies are producing impacts on additional measures of student engagement in high school, their progress toward graduation, and their transition to post-secondary education and work.

It is also important to note that these findings have been aggregated across all the sites and all students. These aggregated findings may mask differences among the sites that are associated with particular strategies for utilizing the basic elements of the Career Academy approach to support students and enhance their engagement in school. They may also hide differences among the participating high schools and school districts that could enhance or limit the supports available to Academy or non-Academy students. Future reports from this evaluation will explore variation across sites on a number of measures of program and contextual differences and their potential effects on students.

Finally, these aggregated findings may obscure the fact that some subgroups of students may benefit more (or less) from the Career Academy experience than others. Future reports will also examine the effects Career Academies have on subgroups of students who are defined by background characteristics that, for example, are associated with a risk of poor performance in high school or that indicate a high level of prior school engagement.

Chapter 1

Introduction

In response to today's changing global economy, the national school-to-work (or school-to-career) movement has ushered in a variety of approaches to restructuring high schools in the United States. At stake is an attempt to support students academically while providing them with marketable skills and clearer pathways to a productive life beyond high school. Career Academies, which are among the best established and most promising of these approaches, embrace the key principles of the school-to-work movement by integrating academic and vocational instruction, providing work-based learning opportunities for students, and preparing students for post-secondary education, employment, or a combination of both. The Academies also reflect key principles of broader school reform initiatives by reconfiguring high schools into smaller, more personalized schools (the "school-within-a-school"), providing teachers with more control over their work through decentralized management, and developing interdisciplinary curricula.

In the school-within-a-school organization that characterizes Career Academies, groups of students (usually 30 to 60 per grade in grades 9 through 12 or 10 through 12) take several classes together each year, in their regular high school, with the same group of teachers. The Academies focus on a career theme — such as health, business and finance, or electronics — which is usually determined by local employment opportunities and evidence of growing demand for such expertise in the marketplace. Career Academies' curricula consist of traditional academic classes (such as math, English, science, and social studies) combined with occupation-related classes that have a specific career theme. Teachers make an effort to integrate the academic and occupation-related content and skills in their classes. Local employers from that field help plan and guide the program, and they serve as mentors and provide work experience for the students. For example, students may work as interns for a local employer as part of their graduation requirements.

The Career Academy approach was first developed in the late 1960s in Philadelphia as a strategy to prevent students from dropping out of high school and to help them prepare to enter the work force after graduation. By the mid-1990s, over 500 Career Academies had been established across the country through a variety of national, state, and school district initiatives. The goals of many Career Academies have also expanded to include improving *all* students' engagement (that is, active and interested involvement) and performance in school and preparing them for post-secondary education as well as a career. That is, today's Career Academies embrace a broad cross-section of high school students — not just those believed to be at risk of dropping out of high school.

This report is the second in a series on an evaluation of High School Career Academies being conducted by the Manpower Demonstration Research Corporation (MDRC). The primary goal of MDRC's Career Academies Evaluation is to measure the extent to which the Career Academies improve students' engagement and performance in high school, their progress toward graduation, and their transitions to post-secondary education and careers. A total of 1,952 stu-

dents from 10 sites have entered the study sample over three school years from 1993–94 to 1995–96. MDRC will follow the students in the study sample through their scheduled graduation from high school. Eventually, the study may follow students through several years after their scheduled graduation from high school to learn about their enrollment and progress through post-secondary education, their employment and earnings, and other outcomes. MDRC will also examine the implementation of core components of the Academy approach in the 10 sites and explore how the experiences of Academy students and teachers differ from those of students and teachers in regular high school programs. The study is being conducted with support from the U.S. Departments of Education and Labor, 15 private funders, and the 10 participating sites.

The first report from the evaluation was concerned primarily with describing the structural elements of the Career Academy approach as it had been implemented and sustained in the 10 sites.[1] The current report begins to look inside the Academies to shed light on the experiences of their students and teachers and to contrast these experiences with those of their peers in the participating high schools. In particular, this report focuses on the question of whether Career Academies function as "communities of support" for students and teachers. For students, such support includes a high level of involvement with and expectations from their teachers, opportunities to collaborate with other students who are engaged in school, enriched classroom instruction and work-related learning opportunities, and activities that prepare them for post-secondary education and careers. These dimensions of support have been identified in other research as important factors that increase motivation and engagement in high school and enhance students' sense of how their work in high school is related to their future.[2] (Engagement includes students' self-reported behavior, emotional state when in school, and psychological commitment to doing well in school.) For teachers, a community of support includes opportunities to collaborate with colleagues, adequate resources, influence over instructional and administrative decisions, and opportunities to develop personalized relationships with students. These factors have been found to be associated with increased job satisfaction and a greater sense of effectiveness among teachers.[3]

The goal of this report is to determine the extent to which students and teachers in the Career Academies experience such supports at higher levels than do students and teachers with similar characteristics in the regular high schools where the Academies are located. The report also examines whether such differences, if they exist, are associated with higher levels of teachers' self-reported sense of effectiveness and students' self-reported motivation and level of engagement.

The findings discussed here are preliminary in the sense that they focus on students' experiences at a relatively early point in their involvement with the Career Academies or the regular high school environments. Most students in the study sample were in the ninth or tenth grade at the time data were collected for this report, and a subsample had reached the eleventh grade. As a result, most students' exposure to the Career Academies consisted primarily of enrollment in the school-within-a-school environment and its academic and occupation-related courses for

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[1]Kemple and Rock, 1996.

[2]Connell et al., 1995; Connell and Wellborn, 1991; Crichlow and Vito, 1989; Wehlage et al., 1989.

[3]Dembo and Gibson, 1985; Bandura, 1977, 1986.

one school year. At the time the data were collected, only a subset of the students in the study sample had been exposed to the Academies' integrated curriculum and employer-provided activities for more than one school year, and very few of the students had participated in the Academies' work-based learning activities. A longer follow-up period is needed to learn specifically how — if at all — these activities improve students' education in the Academies, including both the support they receive and the content of their courses (over and above what is available in regular high school environments), and to determine whether they enhance students' engagement with and performance in school.

Future reports from MDRC's Career Academies Evaluation will provide findings on whether the Career Academies are producing impacts on additional measures of student engagement in high school, their progress toward graduation, and their transition to post-secondary education and work. These reports will also examine the relationships between program effectiveness and the types of process and implementation measures discussed in the current report. Finally, the evaluation includes a more intensive qualitative study covering factors both in and outside school that affect students' progress toward high school graduation and post-secondary education and employment, and how these factors interact with the opportunities provided by the Career Academies.

The next two sections of this chapter summarize some of the primary problems that have been identified in large, comprehensive high schools,[4] and highlight the ways Career Academies are intended to address these problems. The remainder of the chapter describes the research design that this evaluation is using to determine whether Career Academy students fare better then they would have if they had not had the opportunity to enroll in the programs. The final section provides an overview of the current status of the evaluation and summarizes the key findings from the first report.

I. The Importance of Supporting Students and Teachers in High Schools

Since the late 1970s, high schools have come to play an increasingly critical role in preparing young people to make two crucial and related transitions into the adult world: from dependence on parents and guardians to independence, and from schooling to work. On the one hand, high schools have attempted to facilitate students' transitions to independence by providing a relatively secure environment in which adolescents can mature intellectually, socially, physically, politically, psychologically, and emotionally and by serving as the locus of a broad range of social services (such as drug counseling, health and family planning services, and child welfare services). On the other hand, as the global economy has placed a greater premium on higher levels of education, high schools have attempted to facilitate the transition from school to work by creating pathways for students to attain the skills and other prerequisites needed for pursuing further education and a career. As a growing number of studies of high schools indicate, however, several structural

[4]Comprehensive high schools offer mostly academic and some vocational classes, as opposed to vocational high schools, to which students from area high schools travel to take vocational classes.

features of many high schools have undermined their capacity to help students successfully make these transitions. At the same time, the research has revealed a number of reform strategies that have substantial promise for addressing these structural problems.

A. Structural Problems in High Schools

One theme identified across the board in research on the problems students face is the size of comprehensive high schools, particularly in cities. Many studies indicate that the sheer size and comprehensiveness of urban high schools often serve to depersonalize the school environment and prevent teachers from working as teams and developing an atmosphere conducive to learning.[5] In many large high schools, teachers rarely share the same group of students with a small group of colleagues, and students often have different classmates in each course. Students do not have a consistent group of teachers who are accountable for their success, and teachers do not have a chance to coordinate their course work with other teachers. Many students feel anonymous and isolated because they know and are known well by only a small proportion of their classmates. In short, for many students this flux in classroom composition and student and teacher peer groups promotes feelings of alienation and diminishes any sense of community.

Another common problem is the tracked curriculum, which is usually separated into higher-level academic classes for college-bound students and lower-level academic and vocational classes for those presumed not to be college-bound. For the academic disciplines, this separation often confines the teaching and learning process to the transfer of abstract knowledge from teachers to students or, in the case of vocational classes, to a narrow focus on specific job skills. Such classes rarely have opportunities to help students understand how basic skills, such as those learned in math or English, are applied outside the classroom.[6]

A third common problem is that high schools are isolated from other institutions, particularly employers, which often insulates students from the world of work instead of providing them with meaningful exposure to it.[7] With few connections among classes or between school and work, many students are inadequately informed about or are unprepared for post-secondary education and employment opportunities.

To varying degrees, these problematic structural features are present in many high schools; however, they are much more prevalent in urban school districts that serve large numbers of low-income students, students of color, and students with limited English proficiency.[8] Students in these high schools are more likely to drop out; if they do graduate, they often lack the necessary skills and course work to attend college and start on the pathway toward high-wage jobs.[9] These struc-

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[5]Sizer, 1984; Hill, Foster, and Gendler, 1990; Powell, Cohen, and Farrar, 1985; Felner, Primavera, and Cauce, 1981; Roderick, 1993.

[6]Resnick, 1987a; Raizen, 1989; Stasz et al., 1993; Grubb, 1995.

[7]Resnick, 1987b; Berryman and Bailey, 1992; Berryman, 1995.

[8]Wehlage et al., 1989; Louis and Miles, 1990.

[9]Natriello, 1987; William T. Grant Foundation Commission on Work, Family, and Citizenship, 1988; Roderick, 1993.

tural features within the schools also parallel and perpetuate socioeconomic, racial, and ethnic differences in education and employment outcomes for students.

The consequences of these problems in high schools are profound, in part, because succeeding in high school has become more and more a necessary condition (though less and less a sufficient condition) of success in the labor market. At a minimum, a high school diploma sends a concrete signal to the adult world that an adolescent has learned valued skills and behaviors, such as consistent attendance, completing a set of required tasks, and cooperating with other people. High school graduation represents the achievement of competencies in key skills, including the use of texts, numbers, and other information needed for contemporary citizenship. The diploma, along with an adequate level of performance, is also a prerequisite for college and the better-paid and higher-status occupations. At the same time, the value of a high school diploma, without additional education or training, has declined dramatically in recent years.[10] High schools increasingly face the challenge of providing students with what have been called the "new basic skills," which include the ability to solve problems, communicate effectively, work productively in groups, and use computers in addition to ensuring that students are able to read and do math.[11] Beyond these skills, youth development researchers and policymakers have argued that healthy and well-adjusted young people have positive and realistic perceptions of themselves and others, and can participate productively in both one-on-one and group relationships and activities.[12]

B. Emphasizing Interpersonal Supports in High Schools

Since the late 1980s, education researchers and policymakers have focused increasingly on restructuring high schools to support constructive relationships between students and teachers, and to develop teaching and learning strategies that integrate academic and occupation-related knowledge and skills. The goal of these reforms has been to increase students' engagement in high school and to make them more prepared for further education and work.

A series of studies on dropout prevention programs and schools have highlighted the importance of "school membership" in creating a supportive school community that can potentially "hold" students who might otherwise drop out. The studies define school membership as the process by which students seek "to belong and to be accepted as part of a peer group" and at the same time to have "the support and approval of adults."[13] Through interviews with students in dropout prevention programs, these researchers found that students consistently described their new schools as friendlier and more caring places than previous schools in which they were failing and on the verge of dropping out. These students talked about peers who accepted them and teachers who cared about them and displayed a willingness to help them overcome both academic and personal problems. The researchers also found that a strong sense of school membership was associated with students' willingness to reciprocate by participating in school activities and engaging more actively in both the academic and social life of the school.

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[10]See Murnane and Levy, 1996.

[11]See Murnane and Levy, 1996, p. 9.

[12]Pittman and Cahill, 1991; Zeldin, 1995a; Zeldin, 1995b; Pittman, Cahill, and Zeldin, 1994.

[13]Wehlage et al., 1989, p. 114.

The findings from this research point out that these experiences contrasted sharply with the students' experiences in large comprehensive high schools. Many of the students in the dropout prevention programs who were becoming engaged with their new schools had been demoralized by the impersonal adult and peer relationships in the high schools they had attended earlier, and had been overwhelmed by the alienation they felt when they could not find a niche where they could establish an identity. The result was a consistent pattern of course failures, absenteeism, and other school problems. Examining qualitative and quantitative data, these researchers found strong relationships between the strength of students' relationships with peers, teachers, and school and a variety of measures of school engagement and performance. They concluded that, "by establishing a climate of trust and support, successful programs for at-risk youth help diminish isolation and enhance self-esteem. Together these factors allow students to focus . . . on the relationship between success in school and the possibility of a better future."[14]

The importance of supportive school communities does not pertain solely to dropout prevention programs. The term "focus school" has been used to characterize private schools and special-purpose public schools, such as magnet schools and schools with a specific focus on the arts, humanities, or sciences, that develop clear missions to provide students with specific experiences and outcomes. Such schools typically have sufficient independence from administrative bureaucracies to initiate action in pursuit of their mission and to solve their own problems.[15] Like supportive school communities, a key feature of focus schools is their effort to communicate the reciprocal responsibilities of adults and students in the life of the school and to identify the benefits that each can derive from this pursuit. Research has also found that focus schools have a strong commitment to aggressively mold student attitudes and values and to promote a strong sense of community and caring.

The structure of large comprehensive high schools has also been identified as a potential impediment to a supportive school environment because of its impact on teacher effectiveness. By restricting teacher autonomy and flexibility in adapting their instructional strategies, high schools often limit opportunities for professional growth and development, which in turn deprives students of optimal learning experiences. Researchers have pointed to several factors within large high schools that contribute to this problem, including few chances for teachers to meet and work together, minimal influence over their work and the school environment, and a lack of material resources.[16] It is important to note that efforts to improve high schools may well depend on such institutional supports as providing opportunities for teachers' professional development.[17]

Recent research by Milbrey McLaughlin and Joan Talbert at Stanford University highlights the importance of "teacher learning communities" for stimulating and sustaining teachers' learning and growth.[18] Teacher learning communities consist of groups of teachers who collaborate with each other within organizational boundaries, such as schools or subject area departments within

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[14]Wehlage et al., 1989, p. 174.

[15]Hill, Foster, and Gendler, 1990, p. vii.

[16]Johnson, 1990; McLaughlin, 1993.

[17]Sarason, 1990.

[18]Talbert and McLaughlin, 1994; McLaughlin and Talbert, 1993.

schools. These communities can promote greater teacher professionalism by encouraging the development of shared standards for curriculum and instructional strategies, norms for relationships with students and colleagues, and conceptions of good teaching practice. McLaughlin and Talbert call for policies that create more opportunities for teachers to engage in these communities.[19] Teacher professionalism and learning opportunities have also been closely identified as being central to the creation of schools that function as communities of support for students.[20]

II. Career Academies as Communities of Support for Students and Teachers

The research mentioned above identifies several common structural features of effective high schools that enhance the level of interpersonal and institutional supports available to students and teachers. Many of these features are reflected in the Career Academy approach. The school-within-a-school organization, integrated academic/occupational curricula, and employer partnerships that form the cornerstones of the Career Academy approach provide direct responses to the common structural problems of high schools described above. In so doing, they offer unique opportunities to help high school students make the transitions to independence, higher education, and productive work lives.

Previous research on Career Academies echoes the themes that have been developed in the research on promising strategies for building more supportive and focused high school environments. A review of early research on Academies highlighted a range of key factors that make the Academies distinctive from regular high school environments and contribute to their success.[21] One of the most frequent observations made both in these early studies and in subsequent research by others is that Academies are "like families."[22] The Academies' strong sense of community has been identified as one of their most powerful features. These studies concluded that Academies promote a supportive school climate where students and teachers know each other well and have high expectations of each other. The Academies' school-within-a-school organization creates a close-knit and caring community in which students and teachers form personalized bonds with one another. It allows teachers to give students individualized attention and to focus on both personal and academic development.

Another common theme found in previous studies of Career Academies is the notion that Academies function as professional support communities for teachers.[23] Academies provide teachers with more control over key decision-making activities that affect classroom and instructional practice. In addition, this research indicates that Academies provide a more supportive environment for teachers to collaborate with one another, share materials, and pursue innovative instructional strategies. Much of the Academy concept is built on strong teamwork designed to promote both better relationships among the faculty and higher standards for professional practice.

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[19]McLaughlin and Talbert, 1993.

[20]Newmann and Wehlage, 1995; McLaughlin and Talbert, 1993; Louis, Marks, and Kruse, 1995.

[21]Academy for Educational Development, 1989.

[22]See Academy for Educational Development, 1989, p. 16; Stern, Raby, and Dayton, 1992 , p. 95.

[23]Academy for Educational Development, 1989; Stern, Raby, and Dayton, 1992.

Figure 1.1 is a simplified conceptual framework that delineates the theory underlying the Career Academy approach and illustrates the pathways through which it is intended to enhance students' success in high school and their transition to post-secondary education and careers.[24] The first column of Figure 1.1 shows the three key structural elements of the Academy approach: the school-within-a-school organization, an integrated academic/occupational curriculum, and employer partnerships (to provide work experience). These structural elements should be viewed as institutional mechanisms designed to facilitate changes in the instructional and learning opportunities available to teachers and students. The second column of Figure 1.1 lists three types of supports that the Academies' structural elements are designed to influence: (1) enhanced interpersonal support through the intensive interaction and collaboration offered by the school-within-a-school, (2) alternative methods of teaching and learning through the integration of academic and occupational curricula, and (3) work-based education through the employer partnerships. As shown in the figure, these supports are mutually reinforcing and, together, they are intended to affect students' attitudes about, engagement with, and performance in high school (third column of Figure 1.1).

Youth development and educational research suggest that schools-within-schools, the first structural component of Career Academies, should help strengthen the classroom environment and thus improve students' engagement in school. In addition, keeping smaller groups of classmates and teachers together for three or four years should provide the basis for building more stable and supportive relationships between and among the two groups. The second component, changes in school curricula to combine both academic and occupational instruction, is consistent with recommendations from the National Assessment of Educational Progress that include "increasing the use of 'hands-on' examples and placing more problems in real-world contexts to help students construct useful meanings for abstract concepts."[25] The third component, the Academies' work-based education through employer partnerships, is designed to foster students' sense of how new skills can help them gain productive employment by exposing them to the work world and providing them with mentors from the workplace.

Finally, the Academies seek to increase the rates at which students graduate from high school and to provide them with the necessary credentials and strategies to enter post-secondary education and employment (fourth and fifth columns of Figure 1.1). As shown in the figure, however, graduating from high school and acquiring various credentials should be viewed as transitional outcomes — as indications of the extent to which students are prepared for future education and work after high school. Ultimately, the Career Academies are intended to lead to higher levels of post-secondary education and to higher-skilled and higher-paying careers.

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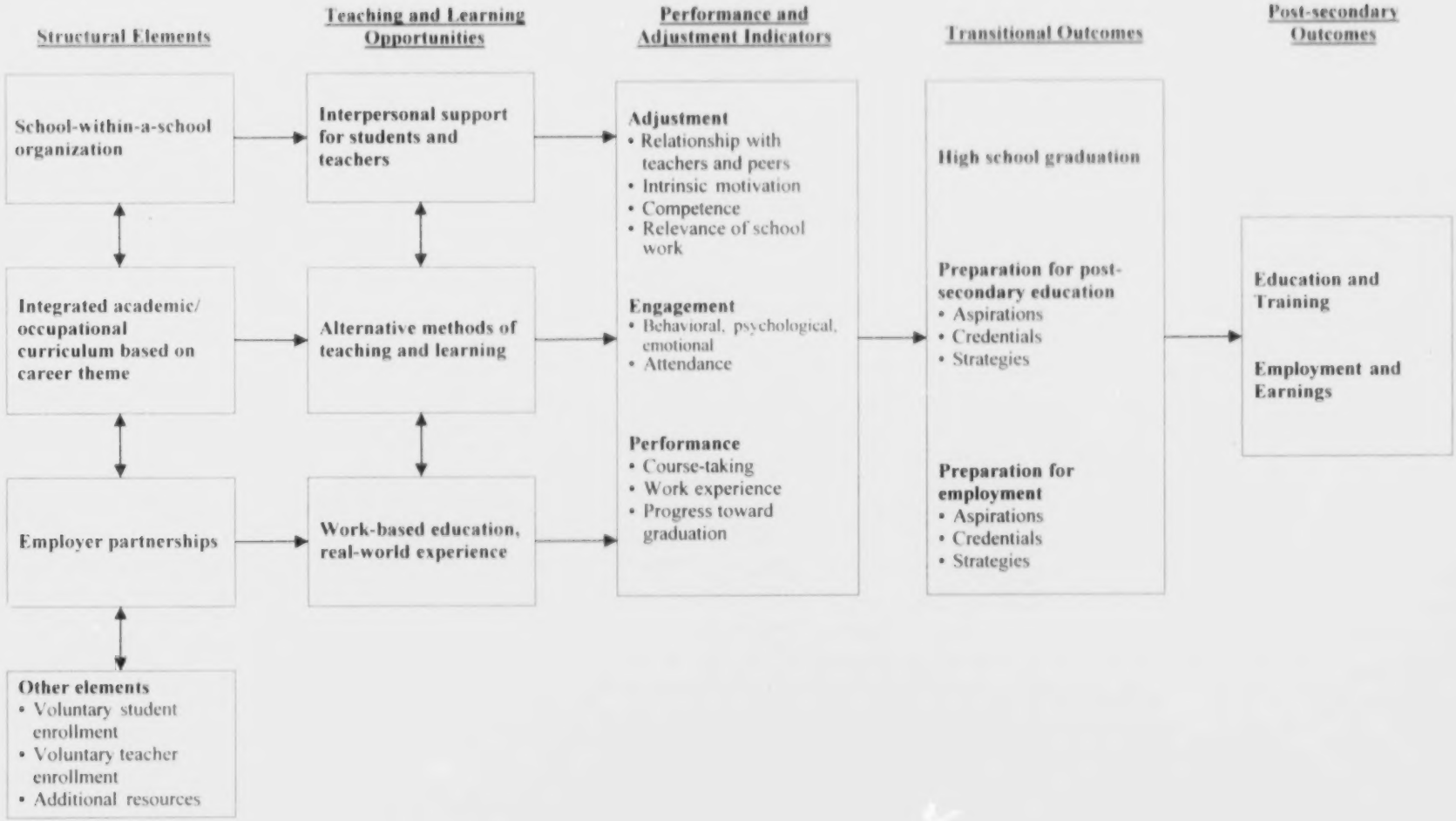
[24]An important goal of MDRC's ongoing study of Career Academies is to document and measure the extent to which Academies' structural changes improve students' academic, behavioral, and work-related outcomes. The conceptual framework illustrated in Figure 1.1 has been used to guide MDRC's selection of sites for the study, its specification of the research design, and its development of data collection instruments and analysis strategies. Chapters 3 and 4 in this report highlight specific dimensions of this conceptual framework that were used to guide the analyses for examining students' and teachers' experiences, in the Academies and regular high school environment.

[25]Mullis, Owen, and Phillips, 1990.

Figure 1.1

Career Academies Evaluation

Simplified Model of the Career Academy Approach



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Of course, the structural elements, teaching and learning opportunities, performance and adjustment indicators, and outcomes that are associated with the Career Academy approach are affected by the context in which they exist, including (1) state, district, and school policies and administrative practices; (2) characteristics of the local labor market, employers, and post-secondary education systems; (3) characteristics of students, families, teachers, and the local community; and (4) high school organization and curricula.

In sum, Career Academies reflect the key principles of several key high school reform efforts aimed at helping students succeed in high school and prepare for further education and work. They represent the cornerstones of the school-to-work movement by integrating academic and vocational instruction, providing work-based learning opportunities for students, and preparing students for post-secondary education, employment, or a combination of both. The Academies also reflect key principles of broader school reform initiatives by restructuring high schools into smaller, more personalized schools, providing teachers with more control over their work through decentralized management, and engaging in interdisciplinary curriculum development. While Career Academies have existed since around 1970, they have undergone an extraordinary growth in their expansion across the country during the 1990s. The research being conducted for this study will shed light on the implementation and impact of this growing reform movement.

III. The Career Academies Evaluation

In 1993, the Manpower Demonstration Research Corporation (MDRC) began development work for a unique study of the Career Academy approach. Its primary purpose is to provide rigorous evidence about the efficacy of the theories and hypotheses embedded in the conceptual framework illustrated in Figure 1.1. The evaluation responds to the growing need for reliable information about the effectiveness of school-to-work and other major school reform initiatives by providing policy- and practice-relevant information on two broad questions:

- To what extent do the Career Academies improve students' school- and career-related performances over and above what they would have achieved if they had not had the opportunity to participate in an Academy?
- How are the Career Academies different from the high school environments in which Academy students would otherwise have been enrolled, and how do these differences shape students' post-secondary education and career preparation?

The Career Academies Evaluation consists of two components: the impact study, which addresses the first question above, and the process and implementation study, which addresses the second. When the evaluation is completed, these two components will be integrated to explore the factors that help explain the Academies' effectiveness or lack of effectiveness.

A. The Impact Study

The primary focus of the impact study is to determine the extent to which the Career Academy approach improves students' motivation and engagement in school, their progress toward graduation, and their preparation for and transitions to post-secondary education and work. Most studies, including the previous studies of Career Academies, aim to determine the effectiveness of a particular education intervention by comparing outcomes for students who are exposed to the intervention with outcomes for students who are not exposed to it. The primary challenge for such research is to minimize any differences between the two groups of students that were not caused by the intervention. To do this, it is necessary to ensure that students who are exposed to the intervention are as similar as possible (in terms of their background characteristics at the time they enter the intervention) to those students who are not exposed to the intervention.

Several expert panels have noted that interventions like the Career Academies are especially challenging to evaluate because they target specific groups and, consequently, their recruitment and intake processes result in "selection bias" — that is, a program's participants are likely to differ from people chosen for a comparison group in their motivation, prior performance in school, and other (unmeasurable) characteristics.[26] This difference is important because, for example, if a program targets the highest-achieving students in a school, in all likelihood that program will appear to be very effective when compared with the rest of the high school, which will include a high proportion of students in the low and middle ranges of achievement. Conversely, if a program targets the lowest-achieving students, it may appear to be ineffective when compared with the rest of the high school, which will include students in the high and middle ranges of achievement. The review panels concluded that unless a randomly assigned control group is used to provide a benchmark for the program group's outcomes, it is typically impossible to determine the effectiveness of such interventions.

The Career Academies Evaluation is extremely rare in the field of education research in that it has demonstrated the feasibility of implementing a random assignment research design within an ongoing high school program. This approach required that certain threshold conditions be present or created in each of the participating sites.[27] First, key stakeholders — including district administrators, teachers, parents, and students — had to agree that, if the Academies had more eligible applicants than they could serve, random assignment was a fair way to determine which applicants would be invited to participate. Toward that end, each of the Career Academies identified and recruited large numbers of eligible students for the study, resulting in nearly twice as many students applying for the Academies as the programs were able to serve. The Academies also had to modify their application process to accommodate two important requirements of the research design: (1) informing students and their parents about the study and gaining their consent to participate, and (2) having all applicants complete a questionnaire on their background characteristics and prior experiences in school. When each of these conditions was met, it was

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[26]Betsey, Hollister, and Papageorgiou, 1985; Job Training Partnership Act (JTPA) Advisory Committee, 1989; Atkinson and Jackson, 1992.

[27]See Chapter 4 in Kemple and Rock, 1996, for a more detailed description of how the random assignment procedure was implemented for this study.

then feasible and appropriate to use random assignment to create the program and control groups for the evaluation.

For this evaluation, a total of 1,952 students from 10 sites entered the research sample over three school years. All these students were determined by the respective Career Academies to be eligible and appropriate for participation in their programs. Of these, 1,063 students were randomly assigned to the program group and were admitted to the Academies.[28] The remaining 889 students were randomly assigned to the control group, were not invited to participate in the Academies, and could choose other options in the high school or school district. In most cases, control group students enrolled in the general programs in the participating high school, but in some cases control group students enrolled in city-wide magnet programs or schools, or in vocational education programs.[29]

B. The Process and Implementation Study

This portion of the study will document the key differences between the Career Academies and the high schools within which they are located and where most of the control group students in the research sample are enrolled. First, it will investigate how the core components of the Academy model were implemented and sustained in the 10 study sites. It will also seek to explain how the experiences of Academy students differ from those of students in the regular high school programs. Finally, data will be obtained to learn how contextual factors (such as school district policies and trends in the local labor market) influence the Academies' operation and effectiveness.

To address these issues, MDRC is collecting several types of data on the study sites. First, data are being collected during a series of field research visits to each of the sites. These visits provide MDRC researchers with the opportunity to interview Academy teachers and students, school and district administrators, and local employer partners. MDRC staff also observe classes and other program activities, such as student recruitment and special events. Extensive qualitative information was also collected during the site selection process and during visits to the sites to monitor implementation of the research procedures. This information will be used to describe the particular characteristics of the participating Career Academies and their local contexts.

Survey data are also being collected and will be used to make systematic comparisons between the experiences and perceptions of Academy students and teachers and those of their non-Academy counterparts. Finally, MDRC is collecting data from student transcripts and school

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[28]In order to ensure that the Career Academy programs were able to operate at capacity during the period of the evaluation, a total of 1,247 students were randomly selected for admission to the programs. The 1,063 students in the study's program group are a randomly selected subset of all the students randomly assigned to the Academies. In addition, 157 students were randomly assigned to waiting lists for the various Academies before students were selected for the control group, in the event that the programs experienced higher rates of attrition than expected.

[29]Magnet schools or programs are racially mixed public schools usually established to meet desegregation goals, which draw students from throughout a school district on a voluntary basis and offer an innovative educational program.

administrative records to document the students' patterns of enrollment and attendance in Academy programs while they are in high school.

C. Sites Participating in the Career Academies Evaluation

The 10 sites participating in the Career Academies Evaluation were chosen strategically, with the goal of providing a credible test of the Career Academy approach as it had been defined in previous research and implemented in a broad range of settings.[10] MDRC sought to ensure that the selected Career Academies were well established rather than in the initial or partial stages of implementation. At the same time, it was important that the participating Academies not be "hothouse" programs — that is, incapable of being implemented under a broad range of conditions and circumstances. Thus, Academies were selected to include school districts and high schools reflecting the diversity of settings (urban centers and small cities) under which Career Academies have been implemented. MDRC was specifically interested in Academies serving a broad range of students, including those who were perceived to be at risk of not succeeding in the regular high school environment.

In addition, MDRC sought high schools in which there was a clear contrast between the Career Academy and other programs available to students. This was important because one of the primary questions for the study was whether the Career Academy approach improves student outcomes above and beyond what would have occurred had they not had the opportunity to attend an Academy. Some schools and school districts operate more than one Career Academy or other Academy-like programs, such as school-within-a-school theme programs, or school-to-work transition programs that include integrated curricula and work-based learning experiences. If such schools were included in the study, a high proportion of students in both the program and control groups would probably have been enrolled in similar programs. This situation would reduce the contrast between students' experiences in the program and control groups and could make the Academies appear ineffective. Finally, the key stakeholders in the school system — the school principal and other administrators, teachers, and school district officials — agreed to participate in the study and to cooperate with the requirements of the research design.

Figure 1.2 shows the names, locations, and affiliations of the 10 Career Academies participating in the evaluation. Most of the nine school districts in the evaluation (one district — San Jose, California — includes two of the participating Career Academies) are large and enroll substantial percentages of black and Hispanic students compared with national averages. The participating school districts also, on average, have higher dropout rates, unemployment rates, and percentages of low-income families. Most Career Academies across the country are located in such districts, and MDRC purposely sought such sites for the Career Academies Evaluation.

All of the sites had established the basic Career Academy components mentioned above: a school-within-a-school organization, an integrated academic/occupational curriculum, and employer partnerships. This combination of features was not available elsewhere in the participating

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[10]See Chapter 2 in Kemple and Rock, 1996, for a more detailed description of the criteria and process used to select sites for this study.

Figure 1.2

Career Academies Evaluation

Names, Locations, and Affiliations of Participating Career Academies

	Academy and High School	School District and City	Academy Network and School Year Academy Started
1.	Business and Finance Academy George Westinghouse High School	Pittsburgh Public Schools Pittsburgh, Pennsylvania	Independent 1984-85
2.	Academy of Finance Lake Clifton/Eastern High School	Baltimore City Public Schools Baltimore, Maryland	National Academy Foundation 1987-88
3.	Public Service Academy Anacostia High School	District of Columbia Public Schools Washington, D.C.	D.C. Public Schools Academy Network 1989-90
4.	Academy for Aerospace Technology Cocoa High School	Brevard County Public Schools Cocoa, Florida	Florida's Academies for Career Development and Applied Technology 1993-94
5.	Academy of Travel and Tourism Miami Beach Senior High School	Dade County Public Schools Miami Beach, Florida	National Academy Foundation 1991-92
6.	Health Professions Academy Socorro High School	Socorro Independent School District Socorro, Texas	Independent 1991-92
7.	Global Business Academy Valley High School	Santa Ana Unified School District Santa Ana, California	California Partnership Academy 1991-92
8.	Watsonville Video Academy Watsonville High School	Pajaro Valley Unified School District Watsonville, California	California Partnership Academy 1991-92
9.	Electronics Academy (SC) Silver Creek High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85
10.	Electronics Academy (I) Independence High School	East Side Union High School District San Jose, California	California Partnership Academy 1984-85

high schools.[11] Each Career Academy attempted to serve a wide range of students, including those who appeared to be at risk of dropping out.

Figure 1.2 indicates that the participating Academies offer a range of occupational themes: Three are in the business and finance fields; three focus on high-technology areas such as electronics and aerospace technology; and one each is in the fields of health occupations, public service, travel and tourism, and video technology. The participating programs were drawn from most of the major, established networks of Career Academies across the country, with four from the California Partnership Academy network, two from the National Academy Foundation network, one from the Florida network of Academies for Career Development and Applied Technology, and one from the network of Academy programs created by the District of Columbia Public Schools. Two of the participating Academies were developed independently through local high school or district initiatives. Figure 1.2 also indicates that, as of the 1994–95 school year (when the last sites joined the study), the participating Career Academies had been in operation for as few as 2 years and as many as 10 years.

In summary, the sites participating in the Career Academies Evaluation provide a solid foundation on which to build a credible assessment of the implementation and impact of the Career Academy approach. Two important cautions should be kept in mind, however, when interpreting the findings from this study. First, because the participating sites were chosen strategically, rather than randomly, the findings from this study cannot necessarily be generalized to all schools and school districts that operate Career Academies. While the sites as a group share the characteristics of typical urban and small-city school districts and, individually, reflect much of the diversity of such districts, they may differ in important ways that limit the generalizability of the findings. Second, many of the reports that are produced from this study will focus on findings that are aggregated across the full sample of students and sites. While such findings shed light on the impact or implementation of the Career Academy approach more generally, they may mask important sources of variation among the sites. As the study proceeds, therefore, an effort will be made to determine whether particular sites or groups of sites provide useful lessons about the potential strengths and limitations of the Academy approach in particular contexts. Third, like their host high schools and school districts, the participating Career Academies are dynamic and evolving. They must confront factors such as staff turnover, increases or decreases in funding, changes in local or state education policy, shifting levels of support from building or district staff, and changes in the amount and types of support they receive from employer partners. Because this is a longitudinal study, it will be able to provide a realistic picture of how ongoing programs evolve and change in the context of dynamic high schools. As a result, the reports from the study will highlight the periods reflected in the data and indicate key contextual factors that influence the applicability of the findings.

[11]Although some of the participating high schools do operate programs that they classify as Career Academies, information collected for this study indicated that most of these programs do not include the core characteristics of the Academy approach described above. As a result, the participating Career Academy programs represent a clear contrast with the other program in the high schools.

IV. The Current Status of the Career Academies Evaluation and an Overview of the Current Report

By the end of the 1995–96 school year (the most recent period for which data are available), the students in the study's program and control groups had been participating for a minimum of one year and a maximum of three years. Data are being collected from students' school records and from surveys administered to Academy and non-Academy students and teachers. MDRC is also collecting data through field research activities including individual and group interviews with key stakeholders and observations of school- and work-related activities.

A. Highlights of the First Report

The first report on the Career Academies Evaluation — *Career Academies: Early Implementation Lessons from a 10-Site Evaluation* (1996) — described the basic foundation for the study and focused on information collected during the start-up phase and data collected through the 1994–94 school year. It discussed the criteria and process used to select sites for the study and described the participating districts and Career Academies. The first report also described the student recruitment, application, and selection processes used by the Career Academies, and explained how the random assignment procedures were incorporated into existing application and selection procedures. The report examined the background characteristics of the students in the research sample and their families, and included a discussion of the extent to which these characteristics indicate that students in the research sample may be at risk of dropping out of high school. Finally, the report offered some initial findings on students' patterns of participation in the programs, described the teachers in the Career Academies, and compared their perspectives on teaching and their work environment with those of their colleagues in the regular high school programs.

Utilizing data collected from field research, interviews, and surveys, the 1996 report presented several significant findings about the Career Academies in this evaluation:

- All 10 of the participating high schools had implemented the Academy approach's structural elements: a school-within-a-school, a curriculum that combines academic and occupation-related courses oriented toward a career theme, and partnerships with local employers. This finding shows that the evaluation has the basis for a valid test of the effectiveness of the Career Academy approach as it exists in a range of high schools.

- The participating Career Academies encompass considerable variation in their numbers of students and teachers, numbers and content of Academy courses, types of opportunities for teacher collaboration, degree of curriculum integration, and the role and scope of employer involvement. Such variation underscores the adaptability of the Academy approach to each school's needs and circumstances, and demonstrates that the approach can be implemented in a wide range of school settings.

- The participating Career Academies have attracted large numbers of applicants with a high degree of demographic and educational diversity. Their broad appeal extends to students who are at risk of performing poorly or of dropping out of school, as well as to students who do well in school.

- A large majority (83 percent) of the students who were selected to participate in the Career Academies enrolled in them, and more than two-thirds of those who enrolled were still participating two years later. Given the high rate of school transfers among similar, non-Academy students, these rates of enrollment and retention should be viewed as substantial.

In summary, an important conclusion from the first report was that the group of participating sites and the student research sample provided the opportunity for a credible test of the Career Academy approach. They also provided the opportunity to learn about how the approach can be adapted to local circumstances and whether it is more effective under particular circumstances or for particular groups of students.

B. Overview of This Report

While the first report from the evaluation was concerned primarily with describing the structural elements of the Career Academy approach as they have been implemented and sustained in the 10 sites, the current report begins to look inside the Academies to shed light on the experiences of their students and teachers and to contrast these experiences with those of their peers in the regular high school environments. The findings discussed in this report are based on the questionnaire data collected from Academy and non-Academy students and teachers in the participating sites. The report also draws on data collected from open-ended interviews with students, teachers, and administrators and from observations of Academy classes and activities. Chapter 2 describes the data sources and research samples used in this report, and presents several analytical issues relevant to the interpretation of the findings.

Chapter 3 examines the extent to which the Career Academy approach increases students' self-reported exposure to selected dimensions of school-related support from teachers, peers, parents, and other adults. The school-related supports that are examined include personalized attention from teachers and teachers' expectations of students in both academic and nonacademic areas, levels of engagement or detachment on the part of peers, collaboration among students, and involvement from parents and other adults in students' lives. Prior research, as well as findings from the data collected for this study, indicate that students who experience higher levels of these supports are more likely to report intrinsic motivations for participating in school activities — that is, they are engaged in school because they enjoy it, not because of external pressure — and to see strong connections between what they are learning in school and their futures. Increases in student motivation are, in turn, related to higher levels of students' self-reported engagement. A central question for Chapter 3, therefore, is whether any increase in the types of school-related supports provided by the Career Academies (over and above what students experience in regular high school environments) leads to increases in students' self-reported motivation and engagement in school.

Chapter 4 examines the extent to which the Career Academies provide teachers with supports that enhance their satisfaction with their work and their sense of effectiveness in making a difference in their students' lives. This analysis is important because the potential effectiveness of the Career Academy approach will depend, in large part, on the work teachers do to make use of its structural elements. In general, this work focuses on constructing a supportive learning environment for students that includes a coherent and rigorous curriculum and opportunities to connect school- and work-based learning. Chapter 4 also explores whether the structural changes created by the Career Academy approach are associated with differences in teachers' level of collaboration with each other, in their classroom resources and control over their work, and in their relationships with students.

Chapter 2

Data Sources, Research Samples, and Analytic Issues

The analysis conducted for this report involves a comparison between the school-related experiences, perceptions, and behavior of students and teachers associated with the Career Academies and those of similar students and teachers in other parts of the participating high schools. This information provides early insights into the extent to which the Career Academies may be supporting students and teachers in ways that regular high school environments do not and in ways that may affect students' engagement in school and teachers' sense of effectiveness.

To address these issues, the report relies on data collected from students and teachers in the participating high schools using the Career Academies Evaluation Student School Experience Questionnaire (SEQ) and the Career Academies Evaluation Teacher Questionnaire, respectively.[1] The first section of this chapter presents the survey sampling strategy and response rates for the SEQ and examines the background characteristics of the Academy and non-Academy students who completed it. It concludes that there are no systematic differences in the background characteristics of these two groups of students. As a result, differences between Academy and non-Academy students' school-related experiences, perceptions, and behavior based on measures developed from the SEQ can be attributed to differences between the Academy and non-Academy school environments in which the students were enrolled.

The Teacher Questionnaire was completed by 65 Career Academy teachers and 403 non-Academy teachers in the 10 participating high schools. Because teachers are not assigned randomly to the Academies or to regular high school classes, an important goal of the Teacher Questionnaire was to determine whether Academy teachers differ substantially from their non-Academy colleagues in terms of background characteristics, training, subject area specialties, and teaching experience. The second section of this chapter discusses the sampling strategy and response rates for the Teacher Questionnaire and examines the background characteristics of the Academy and non-Academy teachers who completed it. It concludes that Academy and non-Academy teachers are similar in terms of a number of background characteristics, education levels, and average number of years of teaching experience. However, the Academy and non-Academy groups of teachers differ somewhat in their racial composition, distribution of teaching experience, and subject area specialties. This finding suggests that differences that emerge based on teachers' responses to the questionnaire items may be due, in part, to differences in their characteristics as well as to differences in their Academy and non-Academy teaching environments. Analyses presented later in this report take this possibility into account by controlling statistically for the differences in measured characteristics. As a result, differences that emerge from these analyses between Academy and non-Academy teachers' experiences, perceptions, and behavior based on measures developed from the Teacher Questionnaire are more likely to be attributable to the differences between the Career Academies and the regular school environments in which they work than to differences between the characteristics of the two groups.

[1]Copies of these instruments can be obtained from the Manpower Demonstration Research Corporation.

The report also draws extensively on qualitative information collected during on-site field research visits to each of the sites. This information is important because students' and teachers' experiences and perceptions are generally more complex than questionnaire data are able to accurately reflect. Thus, findings from the questionnaire should be interpreted with sensitivity to the context within which students and teachers live and work and to the fact that they are influenced by a broad array of factors both inside and outside of school. For example, students' and teachers' experiences and behavior are multidimensional and are not made up of discrete, clearly definable units. At the same time, the questionnaire data are, by definition, discrete and more narrowly specified. The qualitative field research data can help illuminate some of the complexities that are less accessible through the questionnaire data.

Finally, the sites for this study were selected strategically and the students and teachers in the study sample for this evaluation represent a particular cross-section of the students and teachers at the sites. Caution should, therefore, be exercised in generalizing the findings from this report to students and teachers nationally or even regionally. However, the sites selected for the study, and the populations of students and teachers in the study sample, are reasonably typical of the contexts within which Career Academies have been implemented across the country. They also reflect much of the diversity of those contexts.

I. The Student School Experience Questionnaire (SEQ)

The primary purpose of the SEQ was to gather information about students' experiences in high school and to determine whether Career Academy students perceive their school experiences differently from the way their non-Academy peers perceive them. The SEQ includes questions about students' classes, their teachers and classmates, and their perceptions of and attitudes toward school. The questionnaire also asks students about their participation in activities to prepare for their future beyond high school and about some aspects of their life outside of school. Many SEQ items were drawn from the National Educational Longitudinal Surveys (NELS), the High School and Beyond surveys (HSB), and the Reform Assessment Package for Students (RAPS).[2] Others were developed based on findings from qualitative studies of secondary schools and secondary school students.[3]

A key factor in interpreting the findings from the SEQ is the composition and characteristics of the students who completed it. This section of the chapter discusses the sampling strategy and response rates for the SEQ and examines the background characteristics of the students who completed it.

A. Sampling Frame and Response Rates

As discussed in Chapter 1, the Career Academies Evaluation is examining the experiences and outcomes of a total of 1,952 students who applied for the participating Career Acade-

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[2]National Educational Longitudinal Study of 1988, 1991, 1992; High School and Beyond, 1986; Institute for Research and Reform in Education, 1994.

[3]Midgley et al., 1993; Cooper et al., 1994; National Center for Research in Vocational Education, 1988.

mies and were determined by Academy staff to be eligible and appropriate for participation in their programs. This group of students is referred to as *the full study sample*.

The SEQ was targeted to the subsample of 1,521 students in the full study sample who were enrolled in one of the high schools participating in the study at the time the survey was administered.[4] The remaining 431 students in the full study sample were not enrolled in one of the participating high schools and were not targeted for the SEQ. Three factors contributed to the decision to target the SEQ to the students enrolled in the participating high schools rather than to the full research sample. First, the primary purpose of the SEQ was to compare the school-related experiences of Academy and non-Academy students. Of the 431 students who were enrolled in other high schools at the time the SEQ was administered, only 26 percent had ever been enrolled in one of the participating Career Academies, and none was enrolled during the semester when the SEQ was administered. Because students in this group were only minimally exposed to Career Academies, the SEQ would not have added a great deal of information about students' experiences in the Academies and, thus, would have shed little new light on the contrast between Academy and non-Academy experiences. Second, the qualitative field research effort was concentrated in the participating Career Academies and in the high schools in which they were located. Targeting the SEQ administrations in these high schools maximized the opportunity to integrate findings from the qualitative data collected during the field research visits and findings from the SEQ data. Finally, targeting all students in the full study sample would have required significant additional costs to locate them and then administer the SEQ either in person or by phone. The primacy of the other two factors described above outweighed the costs of these additional questionnaire administrations. The potential implications of the findings presented in this report are discussed further below.

Table 2.1 shows the response rates for the sample of students targeted for the SEQ. In all, 1,406 (92 percent) of the 1,521 students targeted for the SEQ completed the questionnaire. This group of students is referred to as *the SEQ sample* and represents 72 percent of the 1,952 students in the full study sample.

Table 2.1 shows the SEQ completion rates for students in the study's program and control groups. In all, 835 students targeted for the SEQ had been randomly assigned to the study's program group and were invited to enroll in a Career Academy. Table 2.1 shows that 791 (95 percent) of these students completed the SEQ.[5] Of the program group students who completed the SEQ, 90 percent were enrolled in a Career Academy at the time they completed the SEQ and an

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[4]This number includes 65 students in Baltimore who initially applied for the Academy of Finance and were identified as being clustered in selected high schools throughout the city during the spring 1995 semester, when the SEQ was administered. These students were targeted for the SEQ because the Academy of Finance at Lake Clifton-Eastern High School is a magnet program that draws students from all over the city. Students who were not selected for the Academy or chose not to enroll were likely to enroll in their zoned high school or another magnet program. Thus, very few non-Academy students in the Baltimore sample were enrolled at Lake Clifton-Eastern High School. The decision was made to administer the SEQ to a subsample of these students so that the SEQ sample from this site would be more representative of the full sample there.

[5]The 835 program group students targeted for the SEQ represent 79 percent of all program group students in the full study sample and the 791 program group students who completed the SEQ represent 74 percent of all program group students in the full study sample.

Table 2.1

Career Academies Evaluation

Student School Experience Questionnaire Response Rates, by Research Group, Site, and Grade Level

Measure	Sample Size Targeted for SEQ	Percent Completing SEQ	Sample Size Completing SEQ
Research group status			
Program	835	94.7	791
Control	686	89.7	615
Site			
Academy of Finance, Baltimore, Md.	205	78.5	161
Health Professions Academy, Socorro, Tex.	171	100.0	171
Academy of Travel and Tourism, Miami Beach, Fla.	236	95.3	225
Electronics Academy, San Jose, Calif. (I)	97	93.8	91
Electronics Academy, San Jose, Calif. (SC)	143	91.6	131
Global Business Academy, Santa Ana, Calif.	229	98.7	226
Watsonville Video Academy, Watsonville, Calif.	243	95.5	232
Public Service Academy, Washington, D.C.	60	88.3	53
Academy for Aerospace Technology, Cocoa, Fla.	85	94.1	80
Business and Finance Academy, Pittsburgh, Pa.	52	69.2	36
Grade level at SEQ administration			
Grade 9	173	96.5	167
Grade 10	997	90.4	901
Grade 11	351	96.3	338
Sample size	1,521	92.4	1,406

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire (SEQ).

NOTE: Percentage completing SEQ is percent of the sample targeted for the SEQ.

other 3 percent had been enrolled in an Academy for at least one semester prior to that point. Because the vast majority of program group students who completed the SEQ had their primary high school experiences in a Career Academy, this group is referred to throughout this report as the *Career Academy group*.

A total of 686 students targeted for the SEQ had been determined to be eligible for a Career Academy but, because the programs were operating at capacity, were randomly assigned to the study's control group and were not invited to enroll in a Career Academy. Table 2.1 shows that 615 (90 percent) of these students completed the SEQ.[6] Of the control group students who completed the SEQ, a small percentage (3 percent) were inadvertently enrolled in a Career Academy at some point during or prior to the semester in which they completed the SEQ. However, because the vast majority of control group students who completed the SEQ had their primary high school experiences outside a Career Academy, this group is referred to throughout the report as the *non-Academy group*.

Table 2.1 shows that the SEQ completion rates varied somewhat across the sites participating in the study. Completion rates ranged from 100 percent of those targeted from the Health Professions Academy (Socorro, Texas) to 69 percent of those targeted from the Academy of Business and Finance (Pittsburgh, Pennsylvania). Although not shown in the table, there was greater variation across sites in the completion rates when viewed as a percentage of the full study sample. This variation ranged from a high of 86 percent for the Health Professions Academy (Socorro, Texas) to 44 percent for the Public Service Academy (Washington, D.C.).[7] These differences were due, in large part, to the nature of the high school "feeder" patterns in the sites. For example, several of the sites with lower-than-average SEQ completion rates (as a proportion of the full study sample for that site), such as the Academy of Finance (Baltimore, Maryland) and the Public Service Academy (Washington, D.C.) recruited students from across their respective school districts. As a result, many students from the study sample in these sites chose to enroll in high schools closer to their homes. Several of the sites with higher-than-average SEQ completion rates, such as the Academy for Travel and Tourism (Miami Beach, Florida), the Global Business Academy (Santa Ana, California), and the Watsonville Video Academy (Watsonville, California), recruited students from the ninth grade in the participating high school. As a result, most of the students from the study sample in these sites continued to enroll in the high school regardless of whether they were enrolled in the Academy. Response rates were also related to student mobility. For example, the Academy for Aerospace Technology (Cocoa, Florida), the Business and Finance Academy (Pittsburgh, Pennsylvania), and the Electronics Academy at Independence High School (San Jose, California) recruited students from the ninth grade in their host high schools. However, for a variety of reasons, a high proportion of students from the study sample left these schools — many to attend other high schools and others to drop out altogether — prior to the administration of the SEQ.

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[6]The 686 control group students targeted for the SEQ represent 77 percent of all control group students in the full study sample, and the 615 control group students who completed the SEQ represent 69 percent of all control group students in the full study sample.

[7]Appendix A provides a complete list of SEQ target and completion rates by site.

Finally, Table 2.1 shows that the SEQ completion rates differed somewhat across grade levels (that is, the grade levels in which students were scheduled to be enrolled when the SEQ was administered). Recall that eight of the Career Academies in the study enrolled students beginning in the tenth grade, and the remaining two sites enrolled students beginning in the ninth grade.[8] Depending on the school year and grade level in which students entered the study sample, they were at different stages in their high school careers when the SEQ was administered. For example, 173 of the students targeted for the SEQ were in the ninth grade when the SEQ was administered in their site, and 97 percent of these students completed the SEQ. Also, 997 of the targeted students were in the tenth grade when the SEQ was administered in their site, and 90 percent of these students completed the SEQ. It is important to note that 136 of these students had entered the study in the ninth grade and were in their second year of the study when the SEQ was administered. The remaining 861 students entered the study when they were in the tenth grade and were in their first year of the study when the SEQ was administered. Finally, 351 of the students targeted for the SEQ were in the eleventh grade when the SEQ was administered, and 96 percent of them completed the questionnaire.

B. Background Characteristics of Students in the SEQ Sample

An important issue for the analyses conducted for this report is whether the SEQ sampling strategies and response rates created any systematic differences in pre-random assignment characteristics between the Academy and non-Academy students in the SEQ sample. If substantial differences existed between the two groups at the start of the study, they might account for any differences that emerge later. Table 2.2, which presents the background characteristics of students in the SEQ sample, indicates that students in the Career Academy and non-Academy groups are similar on virtually all the background characteristics presented. The modest differences in the distribution of race/ethnicity are largely due to lower response rates for non-Academy students in the three sites that have large concentrations of black students. There are also modest differences in the distribution of time students spend on homework. In general, however, there are no systematic differences between the two groups of students.[9] This lack of differences increases confidence that any differences between the groups on SEQ measures can be attributed to the Career Academies rather than to differences in the characteristics of the students in the two groups.

Table 2.2 also gives selected background characteristics of all students in the SEQ sample and indicates that they are from diverse family and educational backgrounds. Most of the students are from minority backgrounds: Approximately 58 percent are Hispanic and 26 percent are black. These demographics reflect both the decision to target Academies in low-income and minority areas for this evaluation, and the large number of Hispanic students in the Santa Ana, Watsonville, San Jose, Socorro, and Miami Beach sites. The SEQ sample consists of marginally more girls than boys (56 percent of the sample is female). As already mentioned, 8 of the 10 Academies in the

[8]One of the sites enrolled students in ninth grade during 1993 and 1994 and then enrolled both ninth- and tenth-grade students in 1995. Only the tenth-grade group was included in the study from 1995.

[9]See Appendix A for a more detailed statistical analysis of differences between students in the Career Academy and non-Career Academy groups from the SEQ sample.

Table 2.2

Career Academies Evaluation

Background Characteristics of Students in the School Experience Questionnaire Sample, by Career Academy and Non-Academy Groups

Characteristic	Career Academy Group (%)	Non-Academy Group (%)	Total (%)	
Demographic characteristics				
Gender				
Male	43.9	43.4	43.7	
Female	56.1	56.6	56.3	
Race/ethnicity				
Black	27.9	22.6	25.6	**
White	9.3	9.7	9.4	
Hispanic	54.6	61.4	57.6	
Asian or Native American	8.2	6.3	7.4	
Age of student at time of application				
13 or younger	7.1	9.5	8.1	
14	33.5	34.7	34.1	
15	48.1	46.0	47.2	
16 or older	11.3	9.8	10.6	
Grade level at time of application				
Eighth grade	20.0	21.6	20.7	
Ninth grade	80.0	78.4	79.3	
Year of application into Career Academy				
Spring 1993	29.8	30.7	30.2	
Spring 1994	41.1	43.3	42.0	
Spring 1995	29.1	26.0	27.7	
High school				
Lake Clifton/Eastern High School	12.0	10.7	11.5	
Socorro High School	11.3	13.3	12.2	
Miami Beach Senior High School	16.1	15.9	16.0	
Independence High School	6.7	6.2	6.5	
Silver Creek High School	9.7	8.8	9.3	
Valley High School	15.8	16.4	16.1	
Watsonville High School	15.4	17.9	16.5	
Anacostia High School	4.8	2.4	3.8	
Cocoa High School	5.6	5.9	5.7	
George Westinghouse High School	2.7	2.4	2.6	

(continued)

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Table 2.2 (continued)

Characteristic	Career Academy Group (%)	Non-Academy Group (%)	Total (%)
Family characteristics			
Family composition			
Lives with mother and father	65.3	68.4	66.7
Lives with mother only	25.0	23.4	24.3
Lives with father only	5.2	3.2	4.3
Lives with other family member(s) or nonrelative(s)	4.5	5.0	4.7
Family size			
2 or 3 family members	8.1	10.2	9.0
4 or 5 family members	40.5	38.9	39.8
6 or 7 family members	33.1	33.6	33.3
8 or more family members	18.3	17.4	17.9
Father's education			
Did not finish high school	38.9	42.3	40.4
GED recipient[a]	7.2	4.5	6.0
High school graduate	23.7	24.8	24.2
Some post-secondary education	16.1	17.0	16.5
College graduate	13.9	11.4	12.8
Mother's education			
Did not finish high school	34.9	37.9	36.2
GED recipient[a]	7.1	9.2	8.1
High school graduate	26.7	25.9	26.3
Some post-secondary education	20.2	17.0	18.8
College graduate	11.1	10.0	10.6
Parent works for pay			
Both work	48.8	49.0	48.9
Father works	23.2	25.1	24.0
Mother works	18.5	14.7	16.8
Neither works	9.5	11.2	10.2
Family moved in the last two years			
Never moved	59.0	60.9	59.8
Moved once or twice	35.2	33.0	34.3
Moved three or more times	5.8	6.1	5.9
Educational characteristics			
English grades since the 6th grade			
Mostly As	14.1	15.4	14.6
Mostly Bs	51.9	48.9	50.6
Mostly Cs	30.6	30.9	30.7
Mostly Ds or below	3.5	4.8	4.1
Math grades since the 6th grade			
Mostly As	14.9	16.0	15.4
Mostly Bs	41.2	41.2	41.2
Mostly Cs	35.1	33.2	34.3
Mostly Ds or below	8.8	9.6	9.1

(continued)

Table 2.2 (continued)

Characteristic	Career Academy Group (%)	Non-Academy Group (%)	Total (%)	
Time spent on homework per week				
1 hour or less	27.9	29.0	28.4	*
2 to 6 hours	58.1	52.9	55.8	
7 or more hours	14.0	18.1	15.8	
Students' future expectations				
Plans to graduate from high school	6.4	6.8	6.6	
Plans to attend vocational/trade school or college	25.3	26.2	25.7	
Plans to graduate from college	41.1	39.3	40.3	
Plans to attend a higher level of school after college	27.2	27.7	27.4	
Students over-age for grade[b]	22.8	20.2	21.7	
Students' school engagement and participation[c]				
Attendance				
Never absent	22.9	24.5	23.6	
Absent 1 or 2 times	36.1	38.0	36.9	
Absent 3 to 10 times	34.3	32.8	33.6	
Absent more than 10 times	6.6	4.7	5.8	
Late for school				
Never	30.9	27.0	29.2	
1 or 2 times	35.3	39.9	37.3	
3 to 10 times	27.2	26.7	27.0	
More than 10 times	6.7	6.3	6.5	
Cuts class				
Never or almost never	83.2	81.4	82.4	
Once a week or more	16.8	18.6	17.6	
Warned about school behavior				
Never	80.6	81.5	81.0	
1 or 2 times	16.0	16.3	16.2	
3 or more times	3.4	2.2	2.9	
Sent to office for behavioral problems				
Never	82.9	82.7	82.8	
1 or 2 times	15.1	14.2	14.7	
3 or more times	2.2	3.0	2.5	
School mobility[d]				
1 or less	74.9	75.0	74.9	
2 to 4	21.8	23.4	22.5	
5 or more	3.3	1.7	2.6	
Students' perceptions of school[e]				
Teachers are interested in students	83.3	83.2	83.2	
Discipline is unfair	15.3	14.5	14.9	
Students feel put down by teachers	16.4	20.4	18.2	*
School is unsafe	21.5	20.2	21.0	

(continued)

Table 2.2 (continued)

Characteristic	Career Academy Group (%)	Non-Academy Group (%)	Total (%)
Characteristics associated with risk of educational failure[f]			
Single-parent household[g]	34.7	31.6	33.3
Has sibling who dropped out of high school	19.8	19.1	19.5
Neither parent has a high school diploma	28.4	29.8	29.0
Family receiving welfare or Food Stamps	21.3	23.5	22.3
Home alone more than 3 hours per day	14.3	13.0	13.7
Student speaks limited English[h]	7.6	9.0	8.2
Students with 2 or more risk characteristics	32.7	35.1	33.7
Sampe size	791	615	1,406

SOURCE: MDRC calculations from the Career Academies Student Baseline Questionnaire (SBQ).

NOTES: The SBQ was completed at the time students applied to a Career Academy. For 1,115 students, this corresponded to the spring semester of ninth grade, and for 291 students it corresponded to the spring semester of eighth grade.

For categorical variables, percentages may not sum to 100 because of rounding.

A chi-square or t-test was used to test differences between Career Academy and non-Academy groups. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent. For categorical variables (e.g., race/ethnicity), the significance level refers to the difference in the distribution of such a variable across Career Academy and non-Academy students.

[a]GED refers to the certificate earned through a General Educational Development program.

[b]Students are defined as over-age for grade at the time of random assignment if they turn 15 before the start of the ninth grade (for the ninth-grade Academies) or 16 before the start of the tenth grade (for the tenth-grade Academies).

[c]Unless otherwise indicated, measures of student engagement and participation in school were asked in reference to the first half of the current school year.

[d]School mobility is defined as the number of schools attended since the first grade beyond the number expected based on promotions in grade level or graduations.

[e]For most students who completed the SBQ in ninth grade, the school of reference is the high school in which the Career Academy is located. For students who completed the SBQ in eighth grade, the school of reference is their middle school.

[f]Students in the Career Academies Evaluation sample with a minimum of three non-missing values on the six indicators of risk are included in the calculations.

Educational failure is defined as failing to achieve in school or dropping out of school. The National Center for Education Statistics (1990) used six characteristics to define risk: living in a single-parent household, living in a low-income household, student speaks limited English, home alone at least three hours per day, has a sibling who dropped out of high school, and neither parent has a high school diploma. Students with two or more risk characteristics are considered to be at risk of educational failure.

[g]The risk characteristic "single-parent household" is defined as living with only the father or the mother, or living with other individuals (such as grandparents, etc.).

[h]Students who responded that they spoke English "not well" or "not at all."

study begin in the tenth grade, accounting for the fact that approximately 80 percent of the SEQ sample were in the ninth grade at the time they applied for the Academies.

While a direct measure of family income is not available for the sample, several of the demographic characteristics provide a broad assessment of family economic status. (One reason a direct measure of income was not collected is that students often do not know family income.) The low educational level of the majority of the students' parents (40 percent of the students indicated that their fathers had not finished high school, and 36 percent indicated that their mothers had not finished high school) suggests that, on average, students' family incomes may be low to moderate. Another estimate of family income is receipt of public assistance. About 22 percent of students reported that their families were receiving either welfare or Food Stamps. This percentage may be an underestimate owing to students' reluctance to report public assistance receipt. Low to moderate family income is also suggested by the number of students living in single-parent households and the high rates of family mobility. About a third of the students reported living in single-parent households. Approximately 40 percent of the students reported that their families had moved at least once in the last two years.

Most of the students in the research sample were engaged in school and achieving moderately well prior to their selection for the Academies (or the control group), according to their responses to MDRC's Career Academies Evaluation Student Baseline Questionnaire, which they completed when they applied to the Academies. This finding seems to reflect the shift in the Career Academy movement from targeting students at risk of dropping out to recruiting a broader cross-section of high school students. Table 2.2 indicates that over 80 percent of students reported receiving mostly Bs or Cs in English since the sixth grade, and approximately 15 percent reported receiving mostly As.[10] About 22 percent of the students were over-age for their grade, which probably indicates that they had repeated a grade. The majority of students attended school regularly, with 6 percent reporting more than 10 absences in the semester prior to random assignment. Over 80 percent of the students reported that they "never or almost never" cut class and a small percent of the students reported being sent to the office for behavioral problems three or more times.

Sixty-eight percent of the students planned to graduate from college at least, and 27 percent planned to attend graduate school. These goals underscore the need for Career Academies to emphasize preparation for post-secondary education as well as for careers.

All of the Academies have targeted a small number of students who were experiencing academic and behavioral difficulties prior to enrollment. Nine percent of the students reported having received mostly Ds in math since the sixth grade. Approximately 15 percent of the students were disengaged from school, which was measured as cutting class regularly, excessive absenteeism, or being sent to the office frequently for behavioral problems (not shown in the table). This finding indicates that the Academies are not "creaming"— that is, serving only easy-to-teach students.

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[10]In the baseline questionnaire, students were asked to describe their grades "since the sixth grade." That meant describing them through half of the ninth grade for students in the tenth-grade Academies, and through half of the eighth grade for students in the ninth-grade Academies.

Table 2.2 also indicates that the Career Academies attract students who appear to be at some risk of dropping out or performing poorly in high school, as well as those who reported they were performing well in their classes and believe they will graduate and go on to college. In all, about one-third of the students had two or more characteristics identified as predictive of dropping out of high school.[11]

C. Further Notes on the SEQ Sample

As noted earlier, for substantive and strategic reasons, the SEQ was targeted primarily to students in the full study sample who were enrolled in a Career Academy or in one of the participating high schools. Therefore, an important factor for interpreting the findings presented in this report is whether students in the SEQ sample are representative of the full study sample. This issue is important because average responses to SEQ items may be different from what they would have been if all students in the study sample had completed a questionnaire. For example, some of the students who did not complete the SEQ may have dropped out of high school altogether. It is highly likely that their school-related experiences (if any) would be very different from those of students who were enrolled in the Career Academies or participating high schools. Other students who did not complete the SEQ may have been enrolled in other high schools that may have been very different from the Career Academies or host high schools. Finally, a few students were enrolled in an Academy or in one of the participating high schools, but for a variety of reasons (for example, they were absent on the days of administration, chronically absent, or in the process of withdrawing from the host high school), they did not complete the SEQ. The reasons they did not complete the SEQ may be associated with their school-related experiences and, thus, may have influenced their responses on the SEQ if they had completed it.

Appendix A presents a statistical analysis of differences in characteristics between the 1,406 students who completed the SEQ and the 546 students who were not targeted or did not complete the SEQ. In short, this analysis indicates that there are systematic differences between those who completed the SEQ and those who did not. For example, those who did not complete the SEQ were more likely to be from a single-parent household, to have changed schools multiple times, to have been absent or cut class several times, to have Cs or Ds in English, and to be over age for their grade level. This finding suggests that students who completed the SEQ are less likely to be considered at risk of doing poorly in school and are more likely to be engaged in school than are students who did not complete the SEQ. As a result, caution should be exercised when attempting to generalize findings from the SEQ sample to the full study sample.

As noted earlier, however, the program and control group students who were not targeted for the SEQ were not enrolled in a Career Academy. This means that a comparison of their SEQ

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[11]Research conducted by the National Center for Education Statistics (NCES) identified six characteristics associated with risk of educational failure: living in a single-parent household, living in a low-income household, student speaks limited English, home alone at least three hours per day, has a sibling who dropped out of high school, and neither parent has a high school diploma (NCES, 1990). Students with two or more risk characteristics are considered to be at risk of educational failure. Data collected from students at the time they applied for Career Academies included similar items used in the NCES research. See Kemple and Rock, 1996, for more information on how these risk measures were constructed and to see a comparison of the Career Academies sample with a national representative sample of students.

responses would not have reflected any contrast between Academy and non-Academy school experiences. As a result, including them in the SEQ sample would not have enhanced or diminished the differences between Academy and non-Academy school experiences presented in this chapter. In addition, as noted above, there are no systematic differences in measured characteristics of the students in the Career Academy and non-Academy groups from the SEQ sample or between the program and control group students from the full study sample who were not targeted for the SEQ. This lack of differences suggests that the measures developed from the SEQ would change equivalently for both groups if all students in the full study sample had completed the SEQ. For example, even though the levels of a given measure might be higher or lower if the SEQ were administered to all students in the full study sample, the differences between Academy and non-Academy students would remain the same. Finally, because the students who completed the SEQ make up a high percentage of the full study sample and reflect much of the sample's diversity, the findings are representative of a broad cross-section of the full study sample.

II. The Career Academies Evaluation Teacher Questionnaire

This report extends some of the analyses conducted in the first report by further examining data collected with the Career Academies Evaluation Teacher Questionnaire. An important goal of this questionnaire was to examine the difference between the way Career Academy teachers view their work and work environment and the views of their colleagues who teach the same subjects in the participating high schools. Another goal of the Teacher Questionnaire was to determine whether Career Academy teachers have distinct background characteristics, training, or teaching experience compared with the general population of teachers in their high schools. The Teacher Questionnaire included questions about the characteristics of teachers' classes, teachers' perceptions of their working environment, and the instructional strategies teachers use in their typical classes. It also included questions about teachers' background characteristics, education, and teaching experience. The Teacher Questionnaire items were drawn from the NELS, the Schools and Staffing Survey (SASS), and the Center for Research on the Context of Secondary School Teaching (CRC) Teacher Questionnaires.[12]

A key factor in interpreting the findings from the Teacher Questionnaire is the composition and characteristics of the group of teachers who completed it. This section of the chapter describes the sampling strategy and completion rates for Academy and non-Academy teachers who completed the Teacher Questionnaire, and examines their background characteristics.

A. Sampling Frame and Response Rates

The Career Academies Evaluation Teacher Questionnaire was administered to Academy and non-Academy teachers in the 10 high schools participating in the study.[13] The Teacher

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[12]National Educational Longitudinal Study of 1988, 1991; Schools and Staffing Survey, 1994; and Center for Research on the Context of Secondary School Teaching, 1989, 1991, 1994.

[13]The Teacher Questionnaire was administered during the spring semester of the 1994–95 school year to Academy and non-Academy teachers in the first seven high schools to join the study: Lake Clifton-Eastern (Baltimore), Socorro, Miami Beach, Independence (San Jose), Silver Creek (San Jose), Valley (Santa Ana), and Watsonville. The (continued)

Questionnaire was targeted to all teachers from the schools' English, math, science, social studies, industrial arts, business, electronics, video arts, and health departments. These subject area departments are the ones represented in the various Career Academy programs. The questionnaire asked teachers about characteristics of their current classes, instructional strategies, work environment, and background and teaching experience.[14]

The targeted sample of teachers included 73 Career Academy teachers and 525 non-Academy teachers. Completed questionnaires were obtained from 65 (89 percent) of the 73 Career Academy teachers across the 10 sites and from 403 (77 percent) of the 525 non-Academy teachers.[15] In short, the sampling strategy and response rates indicate that the findings from the Teacher Questionnaire will be representative of a broad cross-section of teachers in the participating high schools.

B. Characteristics of Teachers in the Teacher Questionnaire Sample

Table 2.3 presents data on selected background characteristics of Academy and non-Academy teachers across the 10 sites in the Teacher Questionnaire sample. These measures show how much of the Career Academies' distinctiveness might be attributed to their teachers' background characteristics, qualifications, and experience. Table 2.3 indicates that Academy and non-Academy teachers are similar in many ways, including their education credentials, type of teaching certificates they hold, and average number of years they have been teaching.

It is important to recognize, however, that some unmeasured characteristics may differentiate Academy from non-Academy teachers. Teachers generally volunteer to be part of the Career Academies, suggesting, for instance, that Academy teachers may be more willing to try something different than are other teachers. Field research conducted for this study has indicated that Career Academies often require teachers to be flexible, open to working with students and colleagues in different ways, and willing to take on additional administrative responsibilities. In some cases, the existing Academy teachers are involved in recruiting or interviewing other prospective teachers, and their preferences are considered in the decision-making process. They are often interested in attracting others like themselves who will fit in well with the team and make unique contributions to the program.

Table 2.3 also highlights some differences between Academy and non-Academy teachers. A higher proportion of Academy teachers in the sample are black. Also, although both groups have approximately the same average number of years of teaching experience, Academy teachers are

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questionnaire was administered during the spring semester of the 1995–96 school year to Academy and non-Academy teachers in the remaining three high schools: Anacostia (Washington, D.C.), Cocoa, and Westinghouse (Pittsburgh).

[14]The information obtained by the Teacher Questionnaire reflects the perceptions and characteristics of teachers who taught in the Career Academies and the host high schools during the 1994–95 or 1995–96 school years. Since the Academies and high schools are dynamic institutions and experience some teacher turnover, the findings presented in this chapter may be somewhat different from those that would have been obtained from data collected in prior or subsequent years.

[15]It is not possible to examine differences in background characteristics between respondents and nonrespondents because no information is available about the nonrespondents except their high school and department affiliation.

Table 2.3

Career Academies Evaluation

Background Characteristics of Career Academy and Non-Academy Teachers

Characteristic	Career Academy Teachers	Non-Academy Teachers	All Teachers	
Average age (in years)	43.9	45.6	45.3	
Age (%)				
Under 30	11.3	6.0	6.7	
30 to 39	17.7	19.3	19.1	
40 to 49	43.5	37.0	37.9	
50 or over	27.4	37.8	36.3	
Gender (%)				
Female	46.9	50.4	49.9	
Male	53.1	49.6	50.1	
Race/ethnicity (%)				
White, non-Hispanic	58.7	64.7	63.9	**
Black, non-Hispanic	25.4	12.2	14.1	
Hispanic	15.9	18.8	18.4	
Other	0.0	4.2	3.6	
Highest degree completed (%)				
Bachelor's	54.7	56.0	55.8	
Master's or higher	45.3	44.0	44.2	
Type of teaching certification (%)				
Regular/standard	90.6	90.5	90.5	
Other (includes probationary, temporary, or provisional)	9.4	9.5	9.5	
Teaching experience (in years)	15.0	16.6	16.4	
Teaching experience (%)				
Less than 4 years	7.8	11.2	10.7	**
4 to 9 years	29.7	20.4	21.7	
10 to 19 years	32.8	22.9	24.3	
20 years or more	29.7	45.5	43.3	
Years teaching in current school	9.2	10.6	10.4	
Main teaching assignment (%)				
Math/science	30.8	43.7	41.9	***
English, languages	24.6	30.5	29.7	
Social studies	18.5	19.1	19.0	
Vocational education	26.2	6.7	9.4	
Sample size	65	403	468	

SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: Calculations for this table are based on data collected in the spring 1995 semester for 390 Career Academy and non-Academy teachers in the first seven sites to join the study, and in the spring 1996 semester for 78 Career Academy and non-Academy teachers from the remaining three sites.

For categorical variables, percentages may not sum to 100 because of rounding.

A chi-square or t-test was used to test differences between Academy and non-Academy teachers. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent. For categorical variables (e.g., main teaching assignment), the significance level refers to the difference in the distribution of such a variable across Academy and non-Academy teachers.

more likely to fall in the middle range of teaching experience (4 to 19 years) than their non-Academy colleagues. In all, 46 percent of the non-Academy teachers have 20 years of teaching experience or more, compared with 30 percent of Academy teachers. Another difference reflects the central role of industry-related teaching in every Career Academy: Vocational education teachers make up a higher percentage of Academy teachers than of non-Academy teachers.[16]

Field research indicates that most Career Academy teachers, despite their willingness to approach teaching in a new way, do not see themselves as extraordinary. As discussed below, many report that Career Academies played a key role in facilitating their teaching beyond what was available to them in the regular high school. This finding suggests, along with the general similarities in measured characteristics, that differences between Academy and non-Academy teachers in such areas as collaboration, classroom practice, and relationships with students are likely to be due, at least in part, to differences between the Academy and non-Academy work environments.

C. Teachers' Workloads

To understand Career Academies, it is important to consider whether their distinctiveness might be related to aspects of teachers' workloads that are not directly related to the key components of the Academy approach. Here, workload is defined as the number of classes they teach, the number of students they teach (in each class and overall), and the amount of time they spend on school-related activities. Previous research findings on the effect of class size on student achievement are mixed. Some studies, which focus primarily on elementary schools, indicate that a significant reduction in class size (to about 15 students per class) can, in itself, improve student achievement.[17] Class size reductions of this magnitude, however, were not found among the Academies in this study and they are not generally considered to be a distinctive feature of the Career Academy approach. Other studies, which include high schools as well as elementary schools, indicate little or no relationship between class size and achievement.[18]

Table 2.4 compares indicators of Academy and non-Academy teachers' workloads and reveals several differences. First, Academy teachers are more likely to teach fewer than five classes (the typical course load for high school teachers in the participating schools) than their non-Academy colleagues. Qualitative field research data revealed that some of the participating Academies have additional resources that enable them to provide teachers with an extra planning period and, thus, a reduced teaching load. This reduced load allows Academy teachers to work on curriculum development and student-related issues, and to take on more of the administrative responsibilities for the program. Some of the Academies can offer an extra planning period to as

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[16]This difference is also partly an artifact of the sampling strategy in which the Teacher Questionnaire was targeted to the non-Academy vocational, technical, or business teachers who taught classes in the same occupational area as the Academy teachers. Naturally, there were other vocational education teachers in the high school whom MDRC did not survey. It is estimated that approximately 20 percent of all high school teachers are vocational education teachers (U.S. Department of Education, 1992).

[17]Glass et al., 1982; Finn and Achilles, 1990.

[18]See Hanushek, 1997.

Table 2.4

Career Academies Evaluation

Selected Characteristics of
Career Academy and Non-Academy Teachers' Workloads

Characteristic	Career Academy Teachers	Non-Academy Teachers	All Teachers	
Number of classes taught (%)				
3 or fewer	18.5	9.7	10.9	***
4	35.4	14.9	17.7	
5 or more	46.2	75.4	71.4	
Number of scheduled hours per class (per week)	4.6	4.6	4.6	
Number of scheduled hours for all classes (per week)	19.3	21.3	21.0	***
Number of hours spent outside regular school hours on school-related activities (per week)	15.2	13.7	13.9	
Average number of students enrolled per class	23.5	26.1	25.7	***
Average number of students enrolled per class (%)				
20 or fewer	28.1	16.0	17.6	***
21 to 25	42.2	24.9	27.3	
26 to 30	18.8	31.4	29.7	
31 or more	10.9	27.7	25.4	
Number of students enrolled in all classes	101	121	118	***
Average daily attendance per class (%)	87.0	85.6	85.8	
Daily attendance per class (%)				
80% or lower	12.9	17.8	17.1	
81 to 85%	19.4	15.3	15.8	
86 to 90%	25.8	29.6	29.1	
91% or higher	41.9	37.3	38.0	
Hours of homework given per class (per week)	2.6	2.4	2.4	
Hours of homework given per class (per week) (%)				
1 or less	12.9	20.9	19.8	
2	50.0	49.2	49.3	
3 or more	37.1	29.9	30.9	

(continued)

Table 2.4 (continued)

Characteristic	Career Academy Teachers	Non-Academy Teachers	All Teachers	
Achievement level of most students enrolled in teacher's most typical class (%)				
Higher than average	33.9	29.6	30.2	
Average	46.8	49.4	49.0	
Lower than average	6.5	11.8	11.1	
Broad cross-section	12.9	9.3	9.8	
"Track" of teacher's most typical class (%)				
Advanced placement/honors	7.9	8.1	8.1	***
College preparatory/academic	52.4	38.4	40.4	
General	7.9	41.2	36.6	
Vocational/technical/business	30.2	6.4	9.6	
Other	1.6	5.9	5.3	
Sample size	65	403	468	

SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: Calculations for this table are based on data collected in the spring 1995 semester for 390 Career Academy and non-Academy teachers in the first seven sites to join the study and in the spring 1996 semester for 78 Career Academy and non-Academy teachers from the remaining three sties.

For categorical variables, percentages may not sum to 100 because of rounding.

A chi-square or t-test was used to test differences between Academy and non-Academy teachers. Statistical significance levels are indicated as: * = 10 percent; ** = 5 percent; *** = 1 percent. For categorical variables (e.g., main teaching assignment), the significance level refers to the difference in the distribution of such a variable across Academy and non-Academy teachers.

many as four teachers, while others can offer it to only one of the teachers, who serves as the "lead" teacher and is responsible for various administrative tasks.

Academy teachers also have, on average, three fewer students enrolled per class than their non-Academy colleagues. Academy teachers are more likely to have fewer than 20 students per class and less likely to have more than 30 students per class than other teachers. The combination of teaching fewer classes on average and having somewhat fewer students per class resulted in about 20 fewer students per Academy teacher enrolled across all their classes compared with their non-Academy colleagues' classes. This represents a 16 percent reduction (compared with the average of 121 students in non-Academy teachers' classes) in the total number of students Academy teachers have in their classes. This smaller class size may enable Academy teachers to develop more personalized relationships with their students or to allocate more of their time to other aspects of their work.

Academy and non-Academy teachers reported spending 14 to 15 hours per week during nonschool hours on school-related work and activities. Both groups reported that they assigned similar amounts of homework (in terms of hours per class) each week.

When asked to characterize the "track" of their most common classes, a higher percentage of Academy teachers than non-Academy teachers indicated that they taught college preparatory or academic classes or vocational or technical classes. A higher proportion of non-Academy teachers indicated that they taught general track classes (that is, classes with no special designation as vocational, advanced, or special education). At the same time, Academy and non-Academy teachers reported similar achievement levels among students in their most typical classes.

In summary, Table 2.4 highlights several differences between key aspects of Academy and non-Academy teachers' workloads. These differences may play a role in enhancing their capacity to work with each other and with their students. At the same time, the information presented in Table 2.4 is aggregated across the 10 sites in the study and may mask important variation among the sites. This possibility will be explored further in future reports.

Chapter 3

Career Academies as Communities of Support for Students

This chapter examines the extent to which the Career Academy approach enhances students' exposure to school-related supports from teachers, peers, parents, and other adults. The school-related supports that are examined include personalized attention from teachers and teachers' expectations of students in both academic and non-academic areas, levels of engagement or detachment on the part of peers, collaboration among students, and involvement from parents and other adults in students' lives. Prior research, as well as findings from the data collected for this study, indicate that students who experience higher levels of these supports are more likely to report intrinsic motivations (that is, they are more self-motivated) for participating in school activities and to see strong connections between what they are learning in school and their futures.[1] Enhancements to these motivational processes are, in turn, related to higher levels of students' self-reported engagement. A central question for this chapter, therefore, is whether an increase in the types of school-related supports provided by the Career Academies (over and above what students experience in regular high school environments) leads to enhancements in students' self-reported motivation and engagement.

The findings of this chapter, in brief, are that Academy students were more likely than their non-Academy counterparts to report high levels of personalized attention from their teachers and the expectations their teachers have of them. Academy students were also much more likely to report high levels of engagement in school and collaboration among their classmates. Academy and non-Academy students reported similar levels of school-related support from parents and other adults. In general, these findings strengthen the conclusion that the structural features of the Career Academy approach — particularly, in this case, the school-within-a-school organization — provide students with higher levels of support than are available to similar students in the regular high school environments.

The findings also indicate that Academy students are more likely than their non-Academy peers to report that they attend school primarily because they like it and are interested in what they are learning — rather than attending school only to avoid the potential negative consequences of not attending. Furthermore, Academy students are more likely to see a connection between what they are learning in school and their futures. At the same time, the Academy students' enhanced support and motivation do not appear to have translated into systematic differences between their self-reported engagement and that of non-Academy students. In other words, Academy and non-Academy students reported similar levels of behavioral, psychological, and emotional engagement with school. One reason for this is that both Academy and non-Academy students appear, in general, to be highly engaged in school to begin with, indicating that most Academy students would, in all likelihood, have been highly engaged in school even if they had not been in the programs.

The first part of this chapter describes the conceptual framework that illustrates hypotheses regarding linkages between school-related supports and self-reported measures of students' moti-

[1]See Connell et al., 1995; Connell and Wellborn, 1991; Crichlow and Vito, 1989; Wehlage et al., 1989.

vational processes and engagement. The next two sections of the chapter compare Academy and non-Academy students on measures of each of the dimensions of support that were developed from the SEQ data and on measures of motivational processes and engagement. As discussed in Chapter 2, because there are no systematic differences in the background characteristics of the Academy and non-Academy students in this sample, differences that emerge based on the measures developed from the SEQ data can be directly attributed to the fact that one group of students had access to the Academies and the other group did not.

I. Conceptual Framework for Analyzing Dimensions of School-Related Supports and Their Relationship to Student Motivational Processes and Self-Reported Engagement

Figure 3.1 is a simplified conceptual model that illustrates hypotheses about how various types of interpersonal, school-related supports that students experience in school may influence their motivation and engagement in school. Here, engagement includes students' self-reported behavior (such as being prepared for and paying attention in class, exerting effort in class, and doing homework), emotional state when in school, and psychological commitment to doing well in school. Motivational processes include students' self-reported reasons for attending school (primarily for intrinsic reasons or primarily in response to external pressure and the potential negative consequences of not attending) and perceived relevance of their school work to their future work or education. One hypothesis illustrated in Figure 3.1 indicates that students who receive higher levels of interpersonal support from their teachers, peers, parents, and other adults are more likely to be intrinsically motivated to attend school and to see stronger connections between school and their future education and careers. Furthermore, according to the model, students who are highly motivated who perceive the relevance of school work to their futures are more engaged with school.

The model depicted in Figure 3.1 was used to generate hypotheses about how the Career Academy approach might change students' experiences in school. It was also used to guide the development of measures from the SEQ and to provide a structure for analyzing relationships among these measures. Before moving on to the analysis of the impact Career Academies have on dimensions of support students experience in school, this section of the chapter describes how measures of the constructs illustrated in Figure 3.1 were created, and summarizes results of analyses examining the relationships among them.

A. Measures of Constructs in the Conceptual Framework

In general, measures of the constructs illustrated in Figure 3.1 are based on students' average ratings of groups of items from the SEQ.[2] As noted earlier, many of the items in the SEQ were drawn from existing surveys of high school students. This approach provided the opportunity to use measures that are similar to those used in previous research on factors that affect student engagement.[3] In addition, correlation and factor analyses were used to explore and confirm the strength of

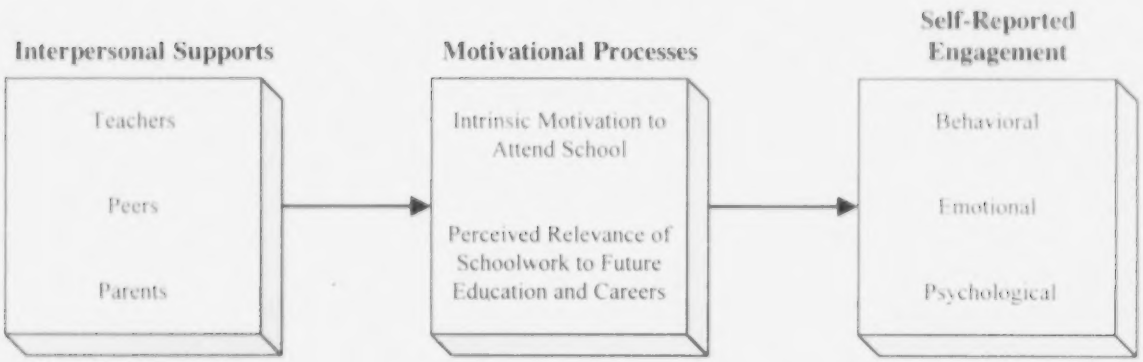
[2]See Appendix B for a complete list of the SEQ items used to represent each construct discussed in this chapter.

[3]In particular, the analysis conducted for this chapter has drawn heavily on the work of the Institute for Research and Reform in Education including Bridges and Connell (unpublished paper) and Connell (1987), and early work by Connell and Wellborn (1991).

Figure 3.1

Career Academies Evaluation

Simplified Conceptual Model Showing Hypothesized Relationships Among Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement



association among related SEQ items used to represent the constructs in Figure 3.1.[4] Only those measures with a high degree of correlation among the component items were used in the analyses.[5]

Many of the SEQ items used to create measures of the constructs in Figure 3.1 asked students to rate "how true" certain statements are in regard to students' experiences in school. The responses to these questions spanned four levels, ranging from "not at all true" to "very true." Other questions asked respondents to indicate "how many" of their classes included certain activities, or "how many" of their teachers or peers were engaged in such activities. The responses to these questions spanned five levels, ranging from "none" to "all or almost all." To create consistency among items, the responses to these types of questions were collapsed to four levels by combining the "most" and "all or almost all" responses. This decision was justified because responses of "all or almost all" were rare. Scale scores were then created by calculating each student's average rating across the group of related SEQ items used to represent a given construct. Each measure, therefore, could have a minimum score of 1 and a maximum score of 4.

Most of the analyses conducted for this chapter focus on the proportion of students who gave consistently "high" ratings across the items used to represent a given construct. For the purposes of these analyses, "high" was defined by the average rating given by the group of students in the SEQ sample who were defined as "highly engaged in school." To determine an indicator of being "highly engaged in school," the study turned to previous research using similar student survey data to create indices of student performance in and adjustment to high school.[6] This research has shown a statistically significant correlation between a similar measure of engagement and students' annual attendance rates. These attendance rates, in turn, have also been shown to be highly predictive of whether students will drop out of high school before the age of 16. In general, this research has shown that students with attendance rates under 75 percent are at high risk of dropping out of high school before the age of 16. Students with attendance rates of 90 percent or higher were identified as being at low risk of dropping out of high school before the age of 16.[7]

In an effort to build on this line of research, the analyses conducted for this report turned to a preliminary file of school records being collected as part of the Career Academies Evaluation.[8]

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[4]See Hatcher, 1994, and Kim and Mueller, 1987.

[5]Cronbach's Coefficient Alpha, a statistical measure of the degree of correlation among related questionnaire items, was calculated for each measure. Alpha levels between .60 and 1.0 are generally considered acceptable. See Hatcher, 1994, p. 137. See Appendix B for the alpha levels for each of the measures used in the analysis for this chapter.

[6]See Bridges and Connell (unpublished paper). Their paper can be obtained from the Institute for Research and Reform in Education, Philadelphia, Pa. See also Connell et al., 1995; Connell and Wellborn, 1991.

[7]Bridges and Connell (forthcoming), p. 12. Although annual attendance rates were found to be powerful predictors of school departure, this research concluded that the combination of reading test scores and annual attendance rates provided the most reliable statistical prediction of the likelihood of school departure.

[8]These data were available only for approximately 1,364 students in the SEQ sample. Data were missing for one cohort of students in one of the 10 sites and for two cohorts of students in another site. As a result, findings on the overall attendance rates for this subsample of students may not present an accurate assessment of attendance rates for all students in the SEQ sample and, therefore, should be interpreted cautiously. Future reports from the evaluation will rely on more complete school records data files. This will provide a more accurate assessment of attendance rates for students in the full study sample as well as a more reliable estimate of the impact the Academies have on student attendance. For the purposes of the current report, the attendance data were used only to calibrate student ratings on measures developed from the SEQ data.

These data were used to identify a group of students in the SEQ sample who had attendance rates of 90 percent or higher during their first year in the study. In all, 82 percent of the students in the SEQ sample (for whom school records data were available) had attendance rates of 90 percent or higher. These students were defined as being "highly" engaged in school and served as the benchmark for determining "high" ratings on other measures developed from the SEQ data. For each construct represented in Figure 3.1, Table 3.1 lists the average rating for all students in the SEQ sample, the average rating given by students who were defined as highly engaged in school (referred to as the "high" rating), and the percentage of all students in the SEQ sample who gave high ratings.[9] Following is a brief description of each of the measures used in the analysis.

1. **Self-Reported Engagement in School.** The engagement measure used in this report is represented by a summary of students' responses to 12 items from the SEQ. Here, engagement is conceptualized as multidimensional and includes (1) a behavioral component (what students report doing in school); (2) an emotional component (how students report feeling in school); and (3) a psychological component (reports of how important school goals are to students). In fact, separate measures were developed for each of the subconstructs and findings related to them are discussed later in the chapter. For the purposes of the present discussion, Table 3.1 shows that, among all students in the SEQ sample, the average rating across the larger group of SEQ engagement items was 3.2 out of a possible 4. It is interesting to note that very few students in the sample indicated what might be considered a "low" level of engagement. Only about 20 percent of the students in the SEQ sample gave an average rating of less than 3 on the engagement items.

Among the "highly engaged students" (those with attendance rates of 90 percent or higher), the average response on the SEQ engagement items was 3.1. This is listed as the "high" rating in Table 3.1, which also shows that 69 percent of the students in the SEQ sample indicated a high rating on the SEQ engagement measure. (That is, they had an average response of 3.1 or higher on the SEQ engagement items.) Note that because the average rating on the engagement measure for all students was actually higher than the "high" rating, more than two-thirds of the students were considered to be highly engaged in school.

As discussed below, students' self-reported rating of engagement was found to be highly correlated with their ratings on the measures of motivational processes illustrated in Figure 3.1. Therefore, the "high" ratings for these measures were defined by the average ratings given by the subsample of students who reported that they were "highly engaged."

2. **Motivational Processes.** Figure 3.1 shows two constructs intended to represent sources of motivation that are hypothesized to increase student engagement: emphasis on intrinsic motivation to attend school and perceived relevance of school work. *Emphasis on intrinsic motivation* is represented by students' responses to five SEQ items that ask students to indicate the extent to which they attend school primarily for intrinsic reasons (because they like school and are learning interesting things) or primarily in response to external pressures or potential negative consequences (they will let their friends or teachers down or they will get in trouble). Table 3.1 shows

[9]Note that the "high" ratings were determined by the ratings given by students in the SEQ sample with attendance rates of 90 percent or higher. Because this group comprises 82 percent of the sample, the "high" ratings will actually be lower than the average rating on the SEQ measures for all students in the SEQ sample.

Table 3.1

Career Academies Evaluation

Summary Measures of Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement Constructs

Measure	Average Rating, All Students	High Rating[a]	Percent With High Rating
Attendance rate in year 1 (%)[b]	93.8	90.0	81.9
Self-reported engagement			
Overall	3.2	3.1	68.7
Behavioral engagement	2.9	2.8	68.6
Emotional engagement	2.9	2.8	55.1
Psychological engagement	3.8	3.6	88.3
Motivational processes			
Overall	2.9	2.8	64.5
Emphasis on intrinsic motivation	2.7	2.6	66.4
Perceived relevance of school work	3.1	3.0	66.8
Interpersonal supports			
Overall	2.7	2.5	61.5
Teacher support	3.1	3.0	67.0
Peer support	2.7	2.6	59.0
Parent support	2.2	2.1	59.9

SOURCE: MDRC calculations from the Career Academies Student School Experience Questionnaire.

NOTES: The measures listed above are summaries of students' ratings of several items from the Student School Experience Questionnaire. See Appendix B for a list of items used to construct these measures. Ratings range from a minimum of 1 to a maximum of 4, with 1 indicating that the respondent strongly rejected a statement about the measure, and 4 indicating that the respondent strongly confirmed a statement. Negatively worded statements were reverse-coded for consistency of scaling.

[a]The high level of attendance rates in year 1 was defined as an average attendance rate of 90 percent or higher. High ratings on the self-reported engagement measures are based on the average score among students with a 90 percent attendance rate or higher. High ratings on the motivational processes measures are based on the average score among students with a high score on the overall self-reported engagement measure. High ratings on the interpersonal support measures are based on the average score among students with a high score on the overall motivational processes measure.

[b]Attendance data were available only for 1,364 students in the Student School Experience Questionnaire sample.

that, among all students in the SEQ sample, the average rating across this group of SEQ items was 2.7 out of a possible 4 (where 1 indicates an exclusive emphasis on response to external pressures and 4 indicates an exclusive emphasis on intrinsic motivation). Among the students who indicated high ratings on the self-reported engagement measure, the average rating on the intrinsic motivation measure items was 2.6 (listed as the "high" rating in Table 3.1). The table indicates that 66 percent of the students in the SEQ sample were considered to have indicated a high rating on the measure of emphasis on intrinsic motivation.

Perceived relevance of school work is represented by students' ratings of five SEQ items that ask about the extent to which they see connections between what they do in school and their future plans for further education and a career. Table 3.1 shows that, among all students in the SEQ sample, the average rating for this group of items was 3.1 out of a possible 4. Among the students who indicated high ratings on the self-reported engagement measure, the average rating on the perceived relevance measure items was 3.0 (listed as the "high" rating in Table 3.1). The table shows that 67 percent of the students in the SEQ sample were considered to have indicated a high rating on the perceived relevance measure.

As discussed below, students' ratings of the motivational processes and measures of engagement were highly correlated with their ratings on the measures of the interpersonal supports they receive from teachers, peers, parents, and other adults. Therefore, the "high" ratings for these measures of support were defined by the average ratings given by the subsample of students who indicated high ratings on the motivational processes measures.

3. **Interpersonal Supports.** Figure 3.1 illustrates three sources of interpersonal support that are hypothesized to affect students' motivation and engagement in school. These include support from teachers, peers, and parents. The constructs listed in the figure reflect the personalized attention teachers give to students and the expectations teachers have of students; engagement of classmates and opportunities to work closely with them; parents' involvement; and help from other adults with school-related activities and problems. The measures used to represent these constructs and subconstructs are discussed later in the chapter. In addition to measures representing each of the four sources of support listed in the figure, an overarching measure of interpersonal support was created based on students' responses to the combination of SEQ items used in these measures. In all, this included 49 SEQ items.

Table 3.1 shows that, among all students in the SEQ sample, the average rating across this group of items was 2.7 out of a possible 4. Among the students who indicated high ratings on the motivational processes measures (combining emphasis on intrinsic reasons for going to school with perceived relevance of school), the average rating on the interpersonal support measure items was 2.5 (listed as the "high" rating in Table 3.1). The table indicates that 62 percent of the students in the SEQ sample were considered to have indicated a high rating on the overall interpersonal support measures.

B. Analysis of Relationships Among Interpersonal Supports, Motivational Processes, and Self-Reported Engagement in School

As with the analysis of relationships among measures developed from the Teacher Questionnaire data, a series of ordinary least squares regression models was used to examine the rela-

tionships among the constructs illustrated in Figure 3.1. In the first regression model, the intrinsic motivation and school relevance variables were regressed separately on the four interpersonal support variables. In the second model, the overall self-reported engagement variable was regressed on the intrinsic motivation variable, the school relevance variable, and the three interpersonal support variables. The results of these analyses are presented in Figure 3.2.[10] The solid lines in Figure 3.2 highlight the statistically significant relationships found between each of the various measures.

As expected, both dimensions of students' motivational processes were found to be significantly and directly related to their self-reported engagement. In other words, students who gave high ratings on the measures of intrinsic motivation and school relevance were highly likely to give high ratings on the self-reported engagement measures. Conversely, students who gave low ratings on the measures of intrinsic motivation and school relevance were highly likely to also give low ratings on the self-reported engagement measures. The figure also indicates that the degree of interpersonal supports students received from their teachers and peers was significantly and directly related to the measures of intrinsic motivation and perceived school relevance. Interestingly, these sources of support were also directly related to engagement, suggesting that they may play a key role in enhancing students' motivation to work hard and remain engaged in school. As discussed in the next section of the chapter, these variables are important because they are likely to be most sensitive to organizational and policy changes such as those reflected in the Career Academy approach. Surprisingly, support from parents was related only to the measure of school relevance.

C. Analyzing Differences Between Career Academy and Non-Academy Students

The primary question for this study is whether the Career Academies provide students with support from their teachers and peers that they would not otherwise obtain in regular high school environments. It also seeks to determine the extent to which the Career Academies increase students' motivation and engagement in school either through these supports or through other features of the programs. To address these questions, the conceptual model illustrated in Figure 3.1 was also used to develop hypotheses about how the key elements of the Career Academy approach might affect the interpersonal supports students get, enhance their motivational processes, and increase their engagement in school.

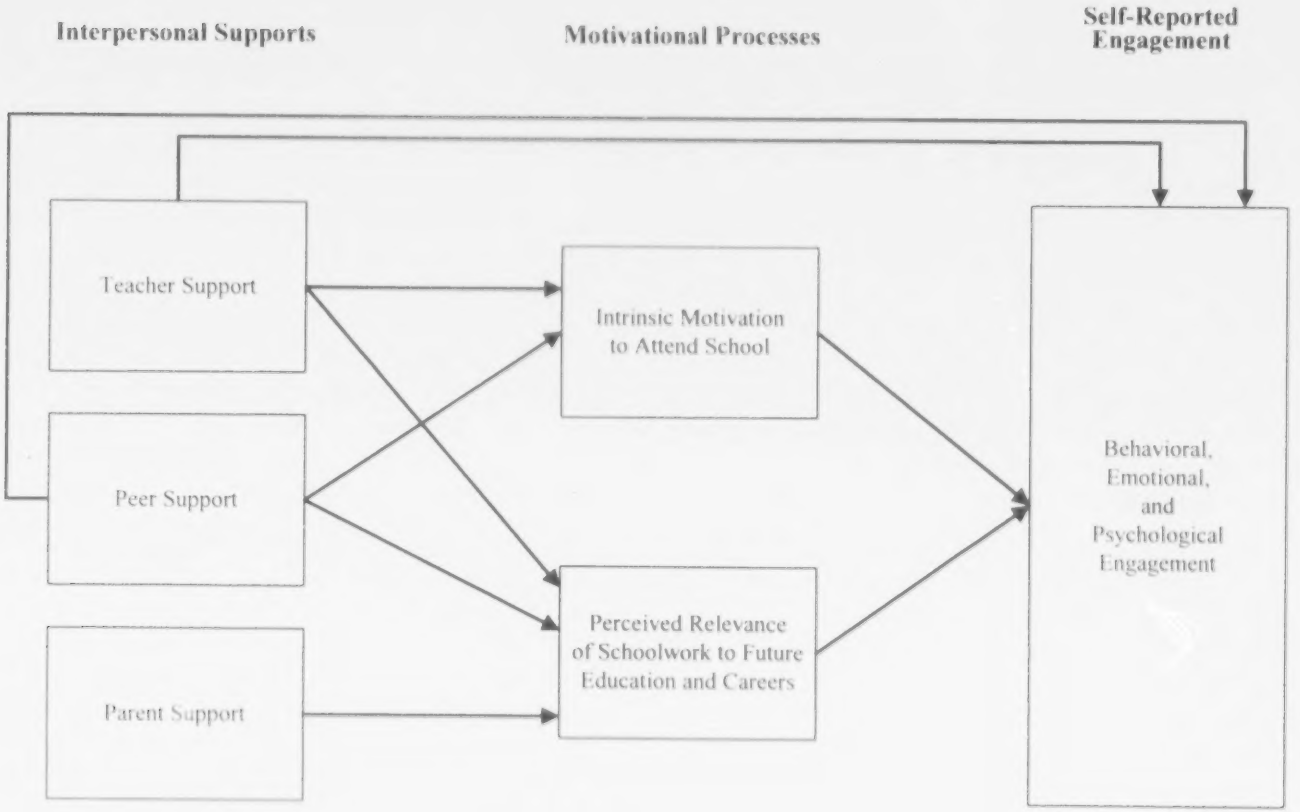
The next three sections of this chapter examine whether the Career Academies increase the proportion of students who view the school-related support they receive in the same way that highly engaged students view such support. To do this, the analyses are based on calculations of the percentage of students who gave consistently "high" ratings to the group of questions used to represent a given construct illustrated in the model in Figure 3.2. In general, the interpersonal support components represent those dimensions of students' experiences in school that are hypothesized to be most directly affected by the Career Academies. Then, moving through the figure to the right, motivational processes may be influenced by the Academies directly to some degree but are more

[10]Correlations among the measures used in the analysis are given in Appendix Table B.2, and regression coefficients and standard errors from the ordinary least squares analysis are also given in Appendix Table B.2. The multiple regression framework used in this analysis means that the statistically significant estimates presented in Appendix Table B.2 (and the corresponding relationships illustrated in Figure 3.2) are independent of one another. In other words, the correlation between the dependent variable and a particular independent variable in the model holds constant the correlation between the dependent variable and the other independent variables in the model.

Figure 3.2

Career Academies Evaluation

Results of Analyses Showing Relationships Among Students' Interpersonal Supports, Motivational Processes, and Self-Reported Engagement



SOURCE: MDRC calculations from Career Academies Student School Experience Questionnaire (SEQ).

NOTES: Ordinary least squares regression was used to examine the relationships among the constructs. A two-tailed t-test was used to test the relationships between the measures used to represent the constructs. The relationships shown above are statistically significant at the 10 percent level or lower. See Appendix B for the results of this analysis.

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likely to be affected indirectly through the dimensions of interpersonal support. Finally, self-reported engagement is least likely to be directly affected by the Academy approach, being indirectly influenced instead by motivational processes and, to a lesser extent, interpersonal supports.

Unless otherwise noted, the remaining tables in this chapter present the percentages of Academy and non-Academy students in the SEQ sample who gave high ratings on the measures used to represent the constructs in Figure 3.2.[11] As described above, high ratings were determined based on the average ratings given by students who rated themselves as being highly engaged. Tables 3.2 and 3.3 also provide findings on Academy and non-Academy students' responses to selected SEQ items that were used to create the teacher and student support measures illustrated in the figure. These tables present the percentage of Academy and non-Academy students who responded at the high end of the response set for each of these items.[12] In general, the differences between the percentages for Academy and non-Academy students indicate the extent to which the two environments differ in interpersonal supports students receive. As discussed in Chapter 2, there are no systematic differences in the measured background characteristics of students in the two groups. As a result, the differences that emerge based on the SEQ data reflect real differences between the Academy and non-Academy environments rather than between the types of students in each environment.

Tables 3.2, 3.3, and 3.4 indicate the statistical significance of the differences between Academy and non-Academy students on the measures described earlier. If the estimated difference between Career Academy and non-Academy groups is statistically significant, one may conclude with confidence that it really occurred. If the estimated difference is not statistically significant, then it may be a product of chance. Statistical significance does not directly indicate the magnitude or importance of an estimated difference, only whether the measured differences between Academy and non-Academy students were systematic and not likely to be due to chance. It is difficult to characterize the differences presented in Tables 3.2, 3.3, and 3.4 as "large" or "small" because it is not known how much of a difference might determine the longer-term impact of the Career Academies in terms of helping students graduate from high school and make successful transitions to postsecondary education and employment opportunities. Therefore, for the purposes of the current analysis the report focuses on whether measured differences between Academy and non-Academy students are statistically significant and consistent across a range of measures. In general, the findings from analyses of the SEQ data are supported by findings from qualitative interviews with Academy teachers and students and observations of Academy activities.

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[11]The analysis conducted for this report examines differences between the ratings given by Career Academy and non-Academy students to each of the item groupings discussed above. This analysis was done first by comparing the average ratings for Academy and non-Academy students and then by comparing the proportion of Academy and non-Academy students with average ratings in pre-specified "high," "medium," and "low" score ranges. The findings presented in this report focus on the proportion of students with average ratings in the "high" range as defined in the previous section of the chapter. Unless otherwise noted, these results were consistent with the results obtained using the other specifications. Also, the results were regression adjusted to control for differences in background characteristics between Academy and non-Academy students.

[12]See Appendix B for a list of these response categories.

II. Academy and Non-Academy Students' Ratings of Teacher Support

As noted earlier, students who enroll in the Career Academies typically share three or four teachers who collaborate with each other and devote shared planning time to addressing student-related issues. These teachers usually choose to be part of an Academy because of the opportunity to focus on a group of students they share with other teachers and to get to know students personally. One hypothesis is that this environment will promote higher levels of personalized attention from teachers and higher expectations of students. Data from both qualitative field research and from the SEQ offer some support for this hypothesis.

For example, one of the most common themes MDRC researchers heard from students and teachers alike was that the Academies provide a "family-like atmosphere" in which they develop closer relationships with each other, share common goals, and have higher expectations of each other. Interviews with Academy students revealed that they perceive their Academy teachers as taking a personalized interest in them. Students from several of the Academies felt that the program was like a "family," and some referred to their teachers (partly in jest) as "mom" or "dad." In general, these students found their Academy teachers approachable for help both with school and with personal problems. Students in several Academies reported that if they were late or absent from school or a class, they knew that a teacher or the Academy secretary would call their homes in the morning (rather than in the afternoon, as is the case with the school attendance office) to get them to come in to school. In one Academy, several students reported that they spent more free time before, during, and after school around the Academy than they did anywhere else in the school. For these students, who entered the Academy in the tenth grade, this behavior contrasted sharply with their ninth-grade experience, when they usually congregated in an isolated part of the campus and often missed or were late for classes. These students pointed to their close relationship with their Academy teachers as an important reason they behaved this way.

Another common theme was that students perceive their Academy teachers as people who care about them personally and are willing to make an extra effort to help them. One student, for example, noted that in ninth grade she had developed a habit of skipping several of her classes each week. She said there were virtually no consequences, even in the few cases when she got caught, because her teachers did not know her and did not seem to care whether she showed up or not. She originally joined the Academy because several of her friends were either in the program or were also entering the program. She began the year with roughly the same attitude as the year before and skipped one or two of her Academy classes. Her teachers immediately contacted her and her parents. She reported that it became clear to her that the Academy teachers were different and that they were going to keep following up to get her to come to class. She said that, although it was sometimes a hassle to have teachers on her back, she actually liked the fact that she had a group of teachers who knew her personally, were paying attention to her, and wanted her to succeed in school.

This section of the chapter presents findings on the extent to which Career Academy students experience higher levels of support from their teachers than do their non-Academy peers in regular high school environments. It focuses on students' assessments of two important dimensions of teacher support: the degree to which students see their teachers as providing them with personalized attention and the types of expectations students feel their teachers have of them. Differences

between the Career Academy and non-Academy environments emerge for both of these dimensions of support, and in the consistency of students' perceptions across a number of indicators.

A. Academy and Non-Academy Students' Ratings of Personalized Attention from Teachers

The top section of Table 3.2 presents findings on the extent to which students believe that their teachers give them personalized attention. The consistent pattern of differences between Career Academy and non-Academy students in the SEQ sample suggests that the Academies promote higher levels of personalized attention from teachers than do the regular high school environments. This pattern is summarized in the first item in the table, which presents the percentage of students who indicated a high rating on personalized attention from their teachers. The summary measure combines students' responses to the four items listed immediately below it, as well as other related items (see Appendix B). In all, 66 percent of the students in the Career Academy group gave high ratings on this measure of personalized attention from teachers, compared with 58 percent of the students in the non-Academy group.

A more detailed indication of what this difference represents can be seen in the remainder of this section of the table, which shows findings for selected components of the personalized attention measure. For example, 47 percent of students in the Career Academy group indicated that most or all of their teachers would make sure they got help if they were having personal problems, compared with 40 percent of the students in the non-Academy group. There was a similar level of difference in the percentage of students who reported that most or all of their teachers go out of their way to make sure everyone understands what is being covered in class. There was an even larger difference in the percentage of students who indicated that most or all of their teachers care about their futures after high school: 54 percent of students in the Career Academy group, compared with 42 percent of students in the non-Academy group, reported that most or all of their teachers really care about their futures after high school.

B. Academy and Non-Academy Students' Ratings of Teacher Expectations

As noted in Chapter 1, another theme that emerges from previous research on effective efforts to restructure high schools is the importance of high teacher expectations. In other studies of secondary schools, researchers have found that schools that successfully increased student engagement and performance tended to be places where teachers had a strong sense of accountability for student success, were willing to extend themselves beyond traditional teaching roles, and believed that all students can learn.[13] The school-within-a-school structure of the Academy approach is often intended to enhance collaboration among teachers and a shared sense of responsibility for their students' success.

The middle section of Table 3.2 presents students' responses to SEQ items that ask students about how many of their teachers hold high expectations of them. Although not shown in the table, at least 90 percent of all students in the research sample, regardless of their research status or involvement in the Academies, indicated that they have at least one teacher who expects them to do the best work they can or really cares whether they feel challenged and understand the material be-

[13]See Wehlage et al., 1989.

Table 3.2

Career Academies Evaluation

Students' Perceptions of Teacher Support, by Career Academy and Non-Academy Groups

Measure	Career Academy Group (%)	Non-Academy Group (%)	Difference
Personalized attention from teachers			
Students who gave a high rating on overall measure of personalized attention from teachers (summary measure)[a]	66.4	57.8	8.6 ***
Students who feel that most or all of their teachers would make sure they got help if they were having personal problems	47.0	39.8	7.2 ***
Students who feel that most or all of their teachers go out of their way to make sure everyone understands what's being covered in class	47.8	42.6	5.2 *
Students who feel that most or all of their teachers care about their futures after high school	54.4	42.3	12.1 ***
Students who feel that their teachers would contact their parents if they did a really good job on an assignment	34.7	29.8	4.9 *
Teacher expectations			
Students who gave a high rating on overall measure of teacher expectations (summary measure)[a]	72.0	63.5	8.4 ***
Students who feel that most or all of their teachers expect them to do the best work they can	81.2	77.4	3.8 *
Students who feel that most or all of their teachers really care whether they try as hard as they can	61.2	52.6	8.7 ***
Students who feel that most or all of their teachers really care whether they feel challenged to use their mind	50.2	40.4	9.8 ***
Students who feel that most or all of their teachers really care whether they can write and speak well	70.9	65.8	5.0 **
Students who feel that most or all of their teachers really care whether they understand the material rather than just giving an answer	64.3	58.6	5.7 **
Overall teacher support			
Students who gave a high rating on overall measure of teacher support (summary measure)[a]	71.0	61.8	9.2 ***
Sample size (total = 1,406)	791	615	

(continued)

Table 3.2 (continued)

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: Unless otherwise noted, the measures listed in this table reflect students' ratings of individual items from the Student School Experience Questionnaire.

Estimates are regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Career Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]This measure summarizes students' ratings of several items from the Student School Experience Questionnaire. See Appendix B for a list of items used to construct the summary measures. The high ratings are based on the average score among students with a high score on the overall motivational processes measure.

79

ing taught in class. In general, however, the table indicates a consistent pattern of differences between Academy and non-Academy students' perceptions of their teachers' expectations of them. Again, this pattern can be seen in the summary, which combines students' responses to the five items listed immediately below it, and their responses to additional items from the SEQ that ask about teacher expectations (see Appendix B). Seventy-two percent of the students in the Academy group indicate "high" ratings on this summary measure, compared with 64 percent of the non-Academy students.

The remainder of this section of the table shows findings for selected components of the teacher expectation measure. Sixty-one percent of the students in the Career Academy group indicated that most or all of their teachers really cared whether they try as hard as they can, compared with 53 percent of students in the non-Academy group. Also, 50 percent of students in the Career Academy group indicated that most or all of their teachers really care whether they feel challenged to use their minds, compared with 40 percent of students in the non-Academy group. The consistent pattern of differences between Career Academy and non-Academy students suggests that the Academies promote higher teacher expectations for students than do the regular high school environments.

C. Academy and Non-Academy Students' Overall Ratings of Teacher Support

The last line in Table 3.2 is a summary measure of students' perceptions of teacher support across the dimensions of personalized attention from teachers and teacher expectations. This measure is made up of students' ratings of the two groupings of SEQ items discussed above: items that ask about perceptions of teacher involvement and items that ask about teacher expectations. It indicates that students in the Career Academy group were more likely than their non-Academy counterparts to indicate high levels of teacher support. Specifically, 71 percent of students in the Career Academy group gave high ratings on the teacher support summary measure, compared with 62 percent of the students in the non-Academy group. As discussed earlier, students who report higher levels of teacher support are more likely to report a higher sense of accomplishment and higher levels of engagement.

III. Academy and Non-Academy Students' Ratings of Peer Engagement and Collaboration and Overall Peer Support

In addition to sharing a core group of teachers, Career Academy students take several classes with the same group of peers. This feature of the school-within-a-school organization of the Academies is intended to promote a shared set of goals and expectations, greater collaboration, and mutual support for success in school. In open-ended interviews with students conducted as part of this evaluation, many Academy students indicated that they knew their Academy classmates better than students in most of their other classes and that they generally felt more comfortable responding to, asking questions, or making presentations in front of their Academy classmates. Even though many students maintained friendships with peers outside the Academies, they often reported that they had more in common with their Academy classmates in terms of what they liked about school and the importance they attached to doing well. These themes are reflected, in part, in students' responses to a range of items on the SEQ.

This section of the chapter presents findings about whether Career Academy students are more likely than non-Academy students to see their peers as engaged in their schoolwork and supportive of each other. Table 3.3 presents findings on students' responses to SEQ items on the extent to which students' classmates are engaged in or detached from school and about the degree to which they have opportunities to work closely with each other. In general the table indicates that differences between the Career Academy and the non-Academy environments emerge in both of these measures.

A. Peer Engagement

The top section of Table 3.3 presents findings on the percentage of students who felt that their classmates were highly engaged, for the most part, in school, and on the percentage of students who perceived that many of their classmates were detached from school. Although not shown in the table, well over 90 percent of students in the sample felt that at least some of their classmates think it is important to do well in school and pay attention, and that success in high school will pay off later. In general, students in the Career Academy group were more likely than non-Academy students to see their classmates as being engaged in school and less likely to see most of their classmates as being detached from school. This difference is highlighted in the first item of Table 3.3, which presents the percentage of students who indicated a high rating on the measure of engagement among their classmates. The summary measure combines students' responses to the eight items listed immediately below it as well as other related items (see Appendix B). In all, 60 percent of the students in the Career Academy group gave high ratings on this measure of peer engagement, compared with 51 percent of the students in the non-Academy group.

A more detailed indication of what this difference represents is given in the eight findings for selected components of the peer engagement and detachment measures. For example, 42 percent of students in the Career Academy group indicated that most or all of their classmates pay attention to the teacher in class, compared with 31 percent of students in the non-Academy group. Similarly, 58 percent of the students in the Career Academy group indicated that most or all of their classmates try to get good grades, compared with 52 percent of the students in the non-Academy group. Other items in this section of Table 3.3 provide findings on the extent to which students report that the majority of their classmates exhibit behavior that indicates they are not engaged in school. In general, Career Academy students were less likely than students in the non-Academy group to report that their classmates were detached from school. For example, 69 percent of students in the non-Academy group compared with 60 percent of students in the Career Academy group indicated that half or more of their classmates are bored in school. Career Academy students were also less likely to report that the majority of their classmates just come to school to have a good time or think it is cool to cut class.

B. Peer Collaboration

Another observation that emerged from the field research conducted for this evaluation is that Academy students were often found working in small groups, discussing project activities, or engaged in group activities that focus on work experiences or other employer-related activities. In fact, many Academy teachers reported that they place more emphasis on students working together

Table 3.3

Career Academies Evaluation

Students' Perceptions of Peer Support, by Career Academy and Non-Academy Groups

Measure	Career Academy Group (%)	Non-Academy Group (%)	Difference
Peer engagement and detachment			
Students who gave a high rating on overall measure of peer engagement (summary measure)[a]	59.6	51.4	8.2 ***
Students who feel that most or all of their classmates think it is important to come to school everyday	43.4	40.3	3.1
Students who feel that most or all of their classmates pay attention to the teacher in class	41.6	30.7	10.8 ***
Students who feel that most or all of their classmates try to get good grades	58.0	52.2	5.8 **
Students who feel that most or all of their classmates think that doing well in school will pay off later	53.5	46.9	6.6 **
Students who feel that the majority of their classmates are bored in school	60.3	69.3	-9.0 ***
Students who feel that the majority of their classmates give up if an assignment is too hard	39.1	45.8	-6.7 **
Students who feel that the majority of their classmates just come to school to have a good time	35.4	42.5	-7.2 ***
Students who feel that the majority of their classmates think it's cool to cut class	34.6	41.3	-6.7 **
Peer collaboration			
Students who gave a high rating on overall measure of peer collaboration (summary measure)[a]	65.0	59.7	5.3 **
Students who report that they have worked on a school project or homework with other classmates	83.4	77.6	5.8 ***
Students who feel that other classmates would try to help if they were having personal problems	87.6	87.0	0.6
Students who report that they and their classmates help each other with schoolwork	84.5	79.4	5.1 **
Students who report that they and their classmates rely on each other to get through difficult assignments	66.1	58.3	7.9 ***
Overall peer support			
Students who gave a high rating on overall measure of peer support (summary measure)[a]	62.7	54.2	8.5 ***
Sample size (total = 1,406)	791	615	

(continued)

Table 3.3 (continued)

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: Unless otherwise noted, the measures listed in this table reflect students' ratings of individual items from the Student School Experience Questionnaire.

Estimates are regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Career Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]This measure summarizes students' ratings of several items from the Student School Experience Questionnaire. See Appendix B for a list of items used to construct the summary measures. The high ratings are based on the average score among students with a high score on the overall motivational processes measure.

on projects than they typically did with students in their non-Academy classes. Students and teachers seemed to feel comfortable collaborating in the Academy environment.

The middle section of Table 3.3 provides findings on the extent to which students in the research sample reported various types of collaboration with their classmates. It indicates that students in the Career Academy group were more likely to have worked with a substantial proportion of their classmates on school projects, homework, or other assignments than were non-Academy students. This pattern of differences between Career Academy and non-Academy students is summarized in the first measure listed in this section of the table. Overall, 65 percent of the Academy students give high ratings on this measure of peer collaboration, compared with 60 percent of the non-Academy students. This overall difference appears to be concentrated in the areas in which students work with each other on school-related assignments or projects rather than personal problems or problems in class. For example, 83 percent of students in the Career Academy group, compared with 78 percent of the non-Academy students, indicated that they worked on a school project or homework assignment at some point with their classmates. There was virtually no difference, however, in the percentage of Academy and non-Academy students who reported that their classmates would help if they were having a personal problem.

C. Overall Peer Support

The last line in Table 3.3 is a summary measure of students' perceptions of peer engagement and collaboration that were used to represent the peer support construct. This measure is made up of students' ratings of the two groupings of SEQ items discussed above. It indicates that students in the Career Academy group were more likely than their non-Academy counterparts to indicate high levels of peer engagement and collaboration. Specifically, 63 percent of students in the Career Academy group gave high ratings on the peer support summary measure, compared with 54 percent of the students in the non-Academy group. This difference provides an indication that the Career Academies tend to promote higher levels of support among students than do regular school environments. This finding is consistent with previous research on focus schools and other efforts at school restructuring that are designed to enhance students' sense of belonging and community. As discussed earlier, students who report higher levels of peer support are more likely to report a higher sense of motivation and higher levels of engagement.

IV. Motivational Processes and Self-Reported Engagement

This section of the chapter examines the extent to which the Career Academies enhance students' intrinsic motivation to attend school and their perceptions of the relevance of their schoolwork to their future education and careers. As illustrated in the conceptual framework presented in Figure 3.2, students who were more likely to report intrinsic reasons for attending school and to see connections between what they are doing in school and their futures were also more likely to report higher levels of engagement. The figure also indicates that these motivational processes function as mediators between student engagement and the interpersonal supports that are more likely to be directly affected by the structural features of the Career Academies.

Table 3.4 presents comparisons between Academy and non-Academy students in terms of their responses to the SEQ items used to represent the intrinsic motivation and school relevance

Table 3.4

Career Academies Evaluation

Percentage of Students Who Indicated High Ratings on Measures of Motivational Processes and Self-Reported Engagement, by Career Academy and Non-Academy Groups

Measure	Career Academy Group (%)	Non-Academy Group (%)	Difference
Motivational processes[a]			
Students who gave a high rating on overall measure of motivational processes	68.2	59.7	8.5 ***
Students who gave a high rating on measure of intrinsic motivation for attending school	68.7	63.5	5.3 **
Students who gave a high rating on measure of perceived relevance of schoolwork	70.0	62.6	7.4 ***
Self-reported engagement[b]			
Students who gave a high rating on overall measure of self-reported school engagement	68.7	68.8	-0.1
Students who gave a high rating on measure of behavioral engagement	68.4	68.9	-0.5
Students who gave a high rating on measure of emotional engagement	57.2	52.4	4.9 *
Students who gave a high rating on measure of psychological engagement	89.5	86.9	2.6
Sample size (total = 1,406)	791	615	

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: The measures listed above are summaries of students' ratings of several items from the Student School Experience Questionnaire. See Appendix B for a list of items used to construct these measures.

Estimates are regression-adjusted using ordinary least squares, controlling for pre-random assignment characteristics of sample members.

Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between the Career Academy and non-Academy groups. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

[a]High ratings on the motivational processes measure are based on the average score among students with a high score on the overall self-reported engagement measure.

[b]High ratings on the self-reported engagement measure are based on the average score among students with a 90 percent attendance rate or higher.

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constructs in Figure 3.2. The first measure under "Motivational Processes" in Table 3.4 summarizes the two measures immediately below it. The overall difference between Academy and non-Academy students indicates that the Career Academies appear to have had an effect on the extent to which students are motivated to attend school for intrinsic reasons and to see the work they do in high school as relevant to their futures. According to the results of the analyses illustrated in Figure 3.2, these effects should translate into higher levels of student engagement. The self-reported indicator of student engagement developed for the SEQ data, however, shows that no systematic difference was evident between Academy and non-Academy students.

The second measure listed under "Motivational Processes" in the table indicates a modest but consistent pattern of difference between Academy and non-Academy students. In all, 69 percent of the Academy students reported high ratings on the intrinsic motivation measure. compared with 64 percent of the non-Academy students. In general, this difference means that Academy students were more likely than their non-Academy counterparts to report intrinsic motivations for attending school ("I like school" and "I am learning interesting things in school") and were less likely to emphasize reasons associated with external pressure or avoidance of negative consequences ("I'll get in trouble if I don't come to school" and "My teachers will notice if I don't show up").

The third motivational processes measure listed in Table 3.4 reflects a similar difference between Academy and non-Academy students in terms of the extent to which they perceive their high school activities as being relevant to their futures. Overall, 70 percent of the Academy students indicated high ratings on this measure of perceived relevance, compared with 63 percent of the non-Academy students. This difference means that Academy students were more likely than non-Academy students to indicate that they were learning a lot in school, that they were receiving good preparation for college, and that what they were learning in high school made them want to go on and learn more later. It also indicates that Academy students were less likely than non-Academy students to report that they did not see the point of what they were learning in school or that their high school education was not providing them with skills that they could use in a job.

The bottom section of Table 3.4 presents comparisons between Academy and non-Academy students in terms of their responses to the SEQ items used to measure their self-reported engagement in school. As noted earlier, engagement is conceptualized as multidimensional and includes a behavioral component (what students report doing in school), an emotional component (how students report feeling in school), and a psychological component (reports of how important school goals are to students). The measures presented in Table 3.4 show the percentage of students who report "high" ratings on these indicators of self-reported engagement. (Recall that a "high" rating was based on the responses for students who had attendance rates of 90 percent or higher during their first year in the study.) Academy and non-Academy students were equally likely to report high ratings on the indicators of self-reported behavioral and psychological engagement measures. Academy students were somewhat more likely than non-Academy students to indicate high ratings on the self-reported emotional engagement measure. These differences indicate that Academy students are at least somewhat more likely than their non-Academy counterparts to feel happy, rather than angry or bored, when they are in school. In all, however, just over two-thirds of both Academy and non-Academy students gave high ratings on the overall engagement measure.

V. Summary

The School Experience Questionnaire data provide empirical support for the conceptual model illustrated in Figure 3.1. In other words, among both Academy and non-Academy students, higher levels of interpersonal support were associated with students' emphasis on intrinsic motivation for attending school and a heightened sense of connection between their schoolwork and their futures. These measures of motivational processes were associated with students' self-reported engagement. The SEQ data also provide evidence that the Career Academies at least modestly increase the support students receive from their teachers and peers, as well as enhancing their motivation and sense of school relevance.

For the most part, the differences between Academy and non-Academy students on the measures of interpersonal support and motivational processes are statistically significant and reflect a systematic contrast between the Academy and regular school environments across several related indicators. At the same time, however, these differences appear to be somewhat modest in magnitude and do not appear to have translated into systematic differences in the self-reported engagement of Academy and non-Academy students. This section of the chapter discusses some of these findings and what they may suggest for further analysis in the study.

First, both Academy and non-Academy students appear to be engaged in school at a fairly high level. For example, preliminary analysis of school records data collected for a subsample of students in the study indicate that the average attendance rate for both Academy and non-Academy students was nearly 94 percent during their first year in the study. Also, based on the self-reported measure of student engagement, about two-thirds of the Academy and non-Academy students reported being highly engaged in school. This finding suggests that Academy students were likely to be engaged in school even if they had not been in an Academy program.

Second, findings discussed in this chapter reflect a relatively early point in students' involvement in the Career Academies and include only a few of the outcomes that will be measured in the study. For example, the follow-up period for most of the students participating in the study included only one school year at the time the data for this report were collected, and only about one-third of the students had reached their second year in the study. As a result, none of the students had participated in the Academies' work-based learning activities (which usually occur during or just after the eleventh grade year), and students' exposure to the occupational theme and integrated curricula was still relatively limited. Also, as the types of supports noted earlier continue over two or three years, they are likely to have a cumulative effect on student engagement and other outcomes such as progress toward graduation and advancement to higher-level academic and occupation-related courses. Future reports from the Career Academies evaluation will include a longer follow-up period and additional measures of student engagement and performance in high school.

Finally, the findings discussed in this chapter have been aggregated across all the sites and all students. These aggregated findings may mask variation among the sites that is associated with particular strategies for utilizing the basic elements of the Career Academy approach to support students and enhance their engagement. They may also mask differences among the participating high schools and school districts that may enhance or limit the supports available to Academy or non-Academy students. Future reports from this evaluation will explore variation across sites on a

number of measures of program and contextual differences and their potential effects on students. These aggregated findings may also mask differences among subgroups of students who may benefit more or less from the Career Academy experience than do others. Future reports will also examine the effects Career Academies have on subgroups of students defined by background characteristics such as those that have been associated with a risk of poor performance in high school or those that indicate a high level of prior school engagement.

Chapter 4

Career Academies as Communities of Support for Teachers

In order to understand how the Career Academies shape students' experiences and behavior in high school, it is crucial to examine the role teachers play and the ways in which the Academy approach supports their work. At the core of the Career Academy approach is the work teachers do to make use of the Academies' school-within-a-school organization, career theme, and employer partnerships to construct a supportive learning environment that includes a coherent and rigorous curriculum and opportunities for students to connect school- and work-based learning. Academy students' ability to succeed depends ultimately on what the Academies enable teachers to do in the classroom and on teachers' capacity to provide an educational environment that enhances learning and helps students make the transition from high school to further education and work.

This chapter examines the extent to which the Career Academy teachers' views of their work and work environment differ from the views of their colleagues who teach the same subjects in the same high schools. The first part of the chapter describes a conceptual framework that summarizes hypothesized relationships between teachers' sense of effectiveness and job satisfaction and their perceptions of key institutional supports. These supports include having opportunities to collaborate with colleagues, having adequate teaching materials and other resources, and being able to influence instructional and administrative decisions. These aspects of teachers' work have been identified in other research as key elements of "learning communities" that provide critical contexts of support for effective instructional practice and ongoing professional development.[1] Strong teacher learning communities, along with opportunities to develop personalized attention to students, have been associated with higher job satisfaction and an enhanced sense of effectiveness, which lead, in turn, to success for students. The remainder of the chapter compares Academy and non-Academy teachers on measures of each of the constructs in the conceptual model that were developed from the Career Academies Evaluation Teacher Questionnaire data, and are supported by findings from qualitative field research in the participating sites.

The findings of this chapter, in brief, are that Academy teachers were more likely than their non-Academy peers in the same high schools to indicate that they had opportunities to collaborate with their colleagues, that they had adequate resources for their success as teachers, and that they were able to influence key decisions about instructional and administrative areas of their work. As a consequence of the way the Academies enhanced those aspects of their work environment, Career Academy teachers were more likely than non-Academy teachers to indicate that they were part of a strong teacher learning community. Academy teachers were also more likely to emphasize personalized attention to their students. These findings support the conclusion that the distinctiveness of the Academy approach provides teachers with supports and professional opportunities that are not as widely available in the regular high school environment. According to the Teacher Questionnaire data, Academy teachers expressed higher levels of satisfaction with their work and work environment than did non-Academy teachers. At the same time, the analyses did not reveal any systematic

[1]See Talbert and McLaughlin, 1992; Talbert, 1993.

difference between Academy and non-Academy teachers in terms of their self-reported sense of effectiveness.

Future reports from the Career Academies Evaluation will expand on these findings in several ways by providing additional analyses and evidence. First, the findings discussed in this chapter have been aggregated across all the sites participating in the study. Such an approach may mask variation among the sites that is associated with particular strategies for utilizing the basic elements of the Career Academy approach to support teachers. The findings may also mask differences among the participating high schools and school districts that may enhance or limit the supports available to Academy or non-Academy teachers. Thus, future reports from this evaluation will explore variation across sites on a number of measures of program and contextual differences and their potential effects on teachers and students. Second, this chapter does not include information about other factors that may differentiate Academy and non-Academy teachers and their work environments. Future reports from the evaluation will focus on the instructional supports and strategies used by Academy and non-Academy teachers and on the role that the employer partnerships play in the Academy programs. Third, findings in this chapter focus on a self-reported measure of whether teachers feel they are making a difference in students' lives. Future reports will include other measures of effectiveness and student outcomes that are drawn from surveys of students themselves and from independent sources such as student school records.

I. Conceptual Framework for Analyzing Factors Related to Teachers' Sense of Effectiveness

Figure 4.1 is a simplified conceptual model that illustrates hypothesized relationships among selected dimensions of teachers' work environment, the interpersonal supports they receive and provide for colleagues and students, their attitudes toward their jobs (job satisfaction), and their sense of whether they are making a difference in students' lives (sense of effectiveness). This model was used to develop hypotheses about how the Career Academy approach may enhance the institutional supports available to teachers and improve their sense of effectiveness. It was also used to guide the development of measures from the Teacher Questionnaire data and to provide a structure for the analyses of relationships among these measures. Before discussing the analysis of differences between Academy and non-Academy teachers on each of the constructs illustrated in Figure 4.1, this section describes how measures of these constructs were created from the Teacher Questionnaire data and then examines the relationships among them.

A. Measures of Constructs in the Conceptual Model

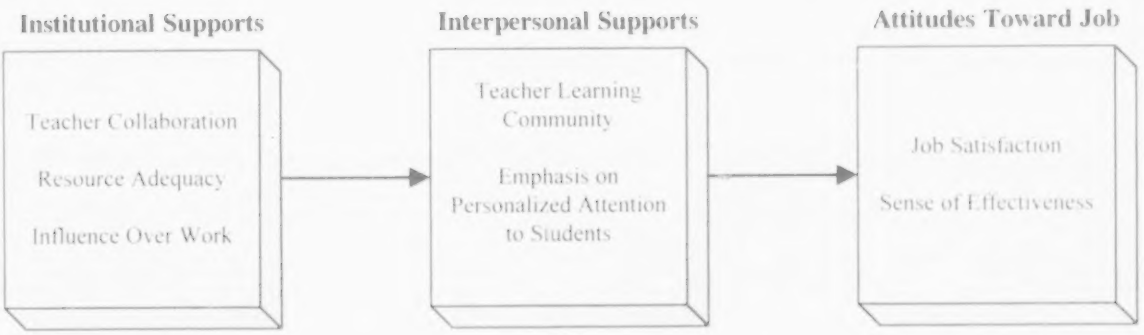
Measures of the constructs illustrated in Figure 4.1 were created using teachers' ratings of groups of items from the Teacher Questionnaire.[2] As noted earlier, many of the items in the Teacher Questionnaire were drawn from existing teacher surveys. This approach provided the opportunity to use measures that are similar to those used in previous research that has also focused on issues re-

[2]See Appendix C for a complete list of the construct measures and their component items taken from the Teacher Questionnaire data.

Figure 4.1

Career Academies Evaluation

Simplified Conceptual Model Showing Hypothesized Relationships Among Teachers' Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs



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lated to teacher support and effectiveness.[3] In addition, correlation and factor analyses were used to explore and confirm the strength of the associations among related Teacher Questionnaire items used to represent the constructs in Figure 4.1.[4] Only those measures with a high degree of correlation among the component items were used in the analyses.[5]

The Teacher Questionnaire items used to create measures of the constructs in Figure 4.1 ask teachers how strongly they feel about various statements about their classes, students, and work environment. Unless otherwise noted, item responses were based on a six-point scale ranging from a "low" rating (indicating that the respondent strongly rejected the statement) to a "high" rating (indicating that the respondent strongly confirmed the statement). Scale scores were created by calculating each teacher's average rating across the group of related items used to represent a given construct.

Most of the analyses conducted for this report focus on the proportion of teachers who gave consistently "high" ratings across the items used to represent a given construct. For the purposes of these analyses, "high" was defined by the average rating given by the group of teachers in the sample who considered themselves to be highly effective.[6] For each construct, Table 4.1 lists the average rating for all teachers in the sample, the average rating given by teachers who considered themselves to be highly effective, and the percentage of all teachers in the sample who gave "high" ratings. Following is a brief description of each of the measures used in the analysis.

Self-Reported Teacher Effectiveness. At the far right of Figure 4.1 is a construct representing teachers' self-reported sense of whether they are effective in their work. This construct captures both teachers' sense of the extent to which they believe that their students' success in school is within their control and their sense of whether they are, in fact, making a difference in their students' lives.[7] Previous research has found that similar self-reported constructions of effec-

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[3]In particular, this evaluation has drawn heavily on the work of researchers at the Center for Research on the Context of Secondary School Teaching to determine useful item groupings from the Teacher Questionnaire. See McLaughlin and Talbert, 1993; Little and McLaughlin, 1993; Talbert and McLaughlin, 1992; Raudenbush, Rowan, and Cheong, 1992.

[4]See Hatcher, 1994; Kim and Mueller, 1987.

[5]Cronbach's Coefficient Alpha, a statistical measure of the degree of correlation among related questionnaire items, was calculated for each measure. Alpha levels between .60 and 1.0 are generally considered acceptable. See Hatcher, 1994, p. 137. See Appendix C for the alpha levels for each of the measures used in the analysis for this chapter.

[6]As described below, highly effective teachers were defined as those who indicated average ratings of at least 5 (out of a possible 6) across the self-reported teacher effectiveness items from the Teacher Questionnaire.

[7]Prior research by Raudenbush, Rowan, and Cheong (1992), Dembo and Gibson (1985), and others focused on the construct of "teacher efficacy." These researchers drew heavily on the work of Bandura (1979, 1986), which specifies a distinction between perceived self-efficacy and outcome expectations. On the one hand, this research defines perceived self-efficacy as teachers' judgment that they can attain a particular level of performance. An outcome expectation, on the other hand, reflects teachers' judgment that their behavior is likely to have certain consequences or outcomes for students. As discussed below, the self-reported effectiveness measure developed from the Career Academies Teacher Questionnaire includes items that capture both of these constructs. Further analysis of this measure indicated that neither Academy nor non-Academy teachers differentiated between them. This report uses the term "self-reported effectiveness" to avoid confusion with previous measures of "teacher efficacy" and to differentiate independent assessments (such as administrator evaluations or ratings) of teacher performance and measures of student outcomes (such as achievement test scores).

Table 4.1

Career Academies Evaluation

Summary Measures of Teachers' Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs

Measure	Average Rating, All Teachers	High Rating[a]	Percent With High Rating
Self-reported effectiveness	4.7	5.0	44.4
Job satisfaction	4.3	4.5	48.7
Emphasis on personalized attention to students	4.9	5.1	44.7
Teacher learning community	4.2	4.4	43.7
Teacher collaboration	3.6	3.7	49.8
Resource adequacy	3.1	3.1	47.4
Influence over areas of work	3.4	3.5	44.7

SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: The measures listed above are summaries of teachers' ratings of several items from the Teacher Questionnaire. See Appendix C for a list of items used to construct these measures. Ratings range from a minimum of 1 to a maximum of 6, with 1 indicating that the respondent strongly rejected a statement about the measure, and 6 indicating that the respondent strongly confirmed a statement. Negatively worded statements were reverse-coded for consistency of scaling.

[a]Average ratings of 5 or higher on the self-reported effectiveness measure were defined as a high rating. High ratings for the teacher learning community, emphasis on personalized attention to students, and job satisfaction measures are based on the average score among teachers with a high score on the self-reported effectiveness measure. High ratings on the teacher collaboration, resource adequacy, and influence over areas of work measures are based on the average score among teachers with a high score on the teacher learning community measure.

tiveness correlated with student achievement and with implementing and sustaining school reform efforts.[8] This research also points out that teachers' sense of effectiveness can be enhanced through institutional and interpersonal supports of the kind illustrated in Figure 4.1. In other words, teachers who work in supportive contexts are more likely to see themselves as highly effective. With this in mind, one way to examine the levels of support provided by Academy and non-Academy high school environments is to view them through the lens of teachers who see themselves as highly effective. This view can provide insight into the extent to which these environments offer "high" levels of support for teacher effectiveness.

The self-reported effectiveness construct is represented by teachers' average ratings of five items from the Teacher Questionnaire. These items are (1) "I feel that it's part of my responsibility to keep students from dropping out of school"; (2) "If I try really hard, I can get through to even the most difficult or unmotivated students"; (3) "I am certain I am making a difference in the lives of my students"; (4) "By trying a different teaching method, I can significantly affect students' achievement"; and (5) a negative statement, "There is really very little I can do to ensure that most of my students achieve at a high level." Teachers were asked how strongly they agreed with each of these statements.

Table 4.1 indicates that among all teachers in the sample, the average response to this group of five items was 4.7 out of a possible 6.[9] It is interesting to note that very few of the teachers in the sample indicated that they were not effective according to the self-reported measures. In fact, over 80 percent of all teachers in the sample had an average response of 4 or higher, indicating that, on average, they tended to at least agree (if not strongly agree) with most of the five statements from the Teacher Questionnaire. For the purposes of the analyses conducted for this report, an average response of 5 or higher was used to characterize teachers as reporting they were "highly effective." In order to obtain this score, teachers had to strongly agree with most of the five items from the Teacher Questionnaire. As indicated in Table 4.1, 44 percent of all teachers in the sample reported that they were "highly effective."

Job Satisfaction. Teachers' satisfaction with their jobs is represented by their average ratings of six items from the Teacher Questionnaire that ask about the extent to which they were satisfied with various aspects of their job and whether they were likely to continue teaching. Table 4.1 indicates that the average rating for these items among all teachers was 4.3 out of a possible 6. As discussed below, teachers' ratings of job satisfaction were highly correlated with their ratings on the self-reported effectiveness measure. Therefore, the "high" rating on job satisfaction was defined by the average rating given by the subsample of teachers who reported that they were highly effective. Table 4.1 shows that the average job satisfaction rating among "highly effective" teachers was 4.5, which was defined as a "high" rating on this measure. In all, 49 percent of the teachers in the sample indicated a rating of 4.5 or higher.

Emphasis on Personalized Attention to Students. This construct is represented by teachers' average ratings of six items from the Teacher Questionnaire that ask about the extent to

[8]See Fuller et al., 1982; Dembo and Gibson, 1985; and Newmann, Rutter, and Smith, 1989.

[9]Note, from Appendix C, that the fifth statement was reverse-coded for consistency of scaling, because it was negatively worded.

which they try to be accessible to students, go out of their way to help them both academically and personally, and take an interest in them beyond the classroom. Table 4.1 indicates that the average rating for these items among all teachers was 4.9 out of a possible 6. Further analyses indicated that teachers' emphasis on personalized attention to their students was highly correlated with their ratings on the self-reported effectiveness measure. Therefore, the "high" rating on this measure was defined by the average rating given by the subsample of teachers who reported that they were highly effective. Table 4.1 shows that the average rating on personalized relationships with students among "highly effective" teachers was 5.1, which was defined as a "high" rating on this measure. In all, 45 percent of the teachers in the sample indicated a rating of 5.1 or higher.

Teacher Learning Community. A common theme that emerges from extensive research on the context of secondary school teaching is the importance of what have been called "teacher learning communities."[10] Such communities support teachers' efforts to examine assumptions about instructional practice, to focus on collective problem-solving based on classroom realities, and to support efforts to change and grow professionally. As noted in Chapter 1, this theme also emerges from research on magnet schools, other school-within-a-school programs, "theme" schools, and what have been termed "focus schools."[11] The conceptual model represented in Figure 4.1 suggests that if teachers are part of a strong teacher learning community, they will be more satisfied with their jobs, which, in turn, promotes a greater sense of effectiveness and making a difference in students' lives. The figure also indicates that teachers' affiliation with a teacher learning community is assumed to be supported directly by the opportunities they have to collaborate with colleagues, the adequacy of the resources they need to be successful, and the degree of influence they have over instructional and administrative decisions. A key question for this evaluation, therefore, is whether Career Academies function as stronger teacher learning communities than do regular high school environments.

The six Teacher Questionnaire items that measure the teacher learning community construct asked teachers whether they have opportunities to learn new things and to continue their professional growth. They also asked whether teachers work closely with other teachers who are continually learning and seeking new ideas, and who support their efforts to develop professionally. Table 4.1 shows that the average rating on the teacher learning community items was 4.2 out of a possible 6 for all teachers in the sample. Further analyses indicated that teachers' sense of belonging to a teacher learning community was highly correlated with their ratings of job satisfaction. As a result, a "high" rating on the teacher learning community measure was defined as the average rating given by the subsample of teachers who reported high levels of job satisfaction. Table 4.1 indicates that 44 percent of all teachers in the sample gave high ratings on the teacher learning community items. This high rating was interpreted as indicating that teachers felt they were part of a "strong" teacher learning community.

Institutional Supports for a Strong Teacher Learning Community. The first column in Figure 4.1 lists three dimensions of teachers' work environment that are hypothesized to support their association with a strong learning community and to enhance their job satisfaction. These

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[10]See Little in Little and McLaughlin, 1993; McLaughlin and Talbert, 1993; Talbert and McLaughlin, 1992.

[11]Wehlage et al., 1989; Hill, Foster, and Gendler, 1990; Heebner et al., 1992.

structural supports include opportunities to collaborate with colleagues, adequacy of resources, and influence over areas of work. As discussed below, further analyses revealed strong relationships between teachers' ratings of these supports and their ratings on the teacher learning community measure. As a result, "high" ratings on each of the institutional support measures were defined by the average ratings given by the subsample of teachers who reported that they are part of a strong teacher learning community.

Teacher collaboration is represented by teachers' average ratings of four items from the Teacher Questionnaire that asked whether they work with colleagues to develop materials and activities for class, discuss alternative ways of teaching, or discuss problems with students. It also includes a question about whether teachers make a conscious effort to coordinate course content with teachers in other subjects.

Resource adequacy is represented by teachers' average ratings of seven items from the Teacher Questionnaire regarding the extent to which they felt that material and institutional resources were adequate to support their teaching success. These resources included a place and time to meet with colleagues, time to participate in workshops, and instructional equipment and materials.

Influence over work is represented by teachers' average ratings of eight items from the Teacher Questionnaire that ask about the degree of influence teachers feel they have over both instructional and administrative policies in their work. Instruction-related areas included selecting curriculum content and topics, selecting textbooks, determining the content of their professional development activities, and acquiring new equipment and materials. Administrative areas included influence over the daily schedule, the classes they teach, the students in their classes, and disciplinary policy.

B. Results of Analyses of Relationships Among Institutional Supports, Interpersonal Supports, and Attitudes Toward Job

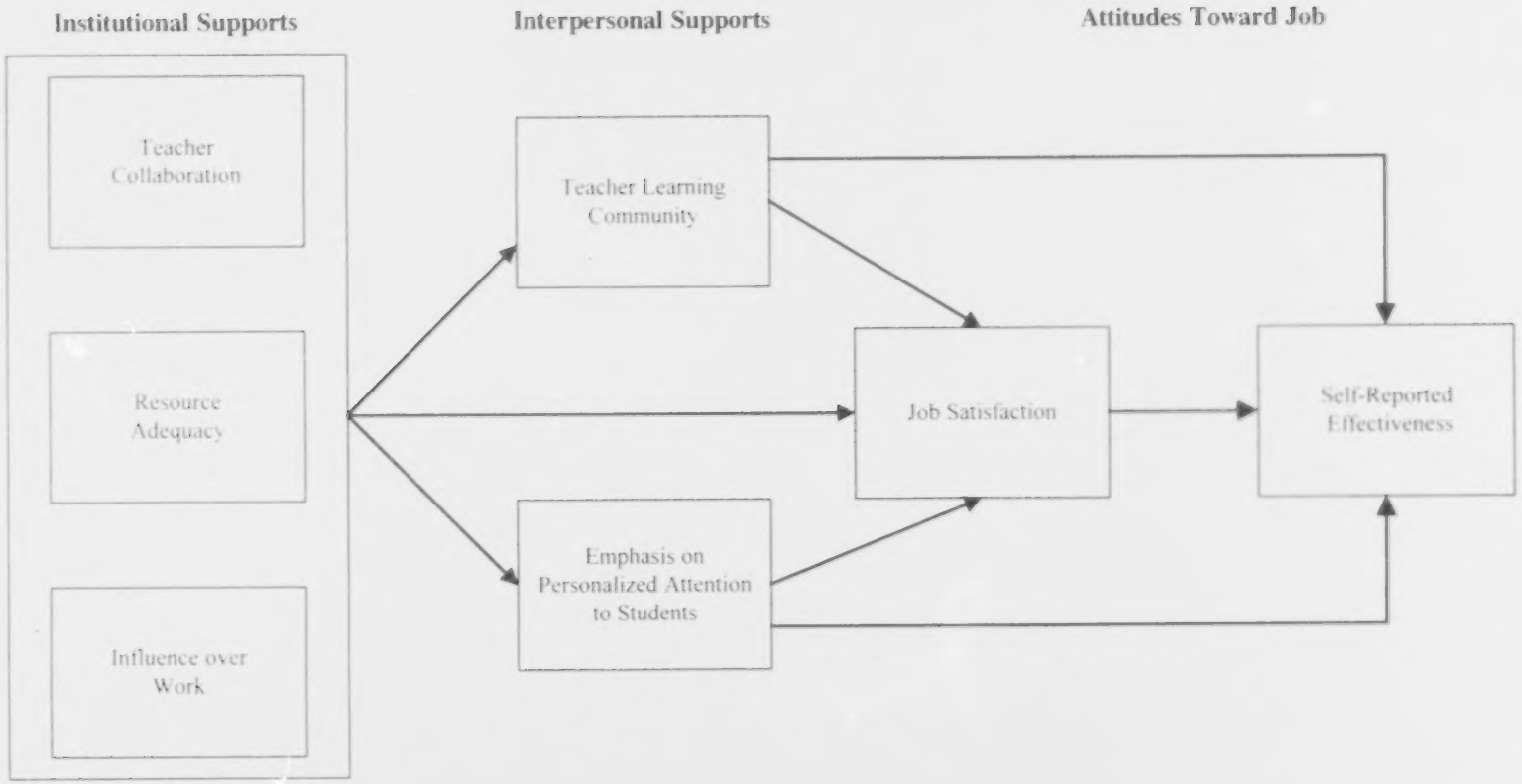
A series of ordinary least squares regression models was used to examine the relationships among the constructs illustrated in Figure 4.1. In the first two regression models, the teacher learning community variable and the variable representing teachers' personalized attention to students were regressed separately on the three institutional support variables. In the third model, job satisfaction was regressed on the three institutional support variables, the teacher learning community variables, and the variable reflecting an emphasis on personalized attention to students. The fourth model regressed the self-reported effectiveness variables on all of the other variables described above. The results of this analysis are presented in Figure 4.2.[12] The solid lines in Figure 4.2 highlight the statistically significant relationships found among the measures. As explained earlier, a statistically significant relationship indicates a higher degree of certainty that the relationship actually exists and is not likely to be the product of chance.

[12]Correlations among the measures used in the analysis are given in Appendix Table C.2. Regression coefficients and standard errors from the ordinary least squares analysis are also given in Appendix Table C.2.

Figure 4.2

Career Academies Evaluation

Results of Analyses Showing Relationships Among Institutional Supports, Interpersonal Supports, and Teachers' Attitudes Toward Their Jobs



SOURCE: MDRC calculations from Career Academies Evaluation Teacher Questionnaire data.

NOTES: Ordinary least squares regression was used to examine the relationships among the constructs. A two-tailed t-test was used to test the relationships between the measures used to represent the constructs. The relationships shown above are statistically significant at the 10 percent level or lower. See Appendix C for the results of this analysis.

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First, job satisfaction and emphasis on personalized attention to students were both found to be positively and significantly related to self-reported effectiveness. In other words, teachers who gave high ratings on the measures of job satisfaction and emphasis on personalized attention to students were highly likely to also give high ratings on the self-reported effectiveness measure. Conversely, low ratings on these measures were associated with low ratings of self-reported effectiveness.[13] Somewhat surprisingly, teachers' ratings on the teacher learning community measure were not found to be directly related to self-reported effectiveness. Rather, the teacher learning community construct was found to influence self-reported effectiveness *indirectly* through its direct relationship to job satisfaction.

Figure 4.2 also indicates that all three of the institutional supports at the far left were found to be significantly and directly related both to teachers' ratings on the teacher learning community measure and their emphasis on personalized attention to students. Interestingly, the institutional support variables were also directly related to the job satisfaction measure. As discussed in the next section, these institutional support variables are important because they are likely to be most sensitive to organizational and policy changes reflected in the Career Academy approach.

II. Differences Between Career Academy and Non-Academy Teachers

A primary question for this study is whether the Career Academies provide teachers with professional opportunities that they value and that are likely to enhance their teaching beyond the opportunities available to their colleagues in the regular high school. To the extent that these opportunities and supports are more widely available in Career Academies, the approach holds substantial promise for both improving the school as a workplace for teachers and for enhancing student outcomes. To address this question, the conceptual model illustrated in Figure 4.1 was used to develop hypotheses about how the key elements of the Career Academy approach might affect teachers' work environment and experiences, which, in turn might influence their satisfaction with their work and their sense of effectiveness.

In general, the institutional supports shown in Figure 4.2 represent those dimensions of teachers' work environment that are hypothesized to be most directly affected by the Career Academies. Then moving through the figure to the right, interpersonal supports may be influenced by the Academies directly to some degree but are more likely to be affected indirectly through institutional supports. Teachers' attitudes toward their jobs, in turn, are affected indirectly by both interpersonal and institutional supports. For example, Figure 4.1 suggests that the Academies would directly influence the opportunities teachers have to collaborate with colleagues, their material and institutional resources, and their influence over instructional and administrative areas of

[13]Note that the multiple regression framework used in this analysis implies that the relationships illustrated in Figure 4.2 are independent of one another. In other words, the third regression model regresses self-reported effectiveness on the three institutional support variables, the teacher learning community variable, the variable representing emphasis on personalized relationship with students, and the job satisfaction variable. The results presented in Appendix Table C.2 indicate that job satisfaction was significantly related to self-reported effectiveness, holding constant the relationships between self-reported effectiveness and the remaining constructs represented in Figure 4.2.

work. Based on the results of analyses represented in Figure 4.2, higher levels of these institutional supports enhance the emphasis teachers place on personalized attention to students and their sense of belonging to a teacher learning community. Therefore, to the extent that Career Academies improve the institutional supports available to teachers, there are, theoretically, likely to be differences between Academy and non-Academy teachers in terms of their interpersonal relationships with colleagues and students. Finally, the analysis explores the extent to which the Academies appear to influence teachers' job satisfaction and sense of effectiveness.

This section of the chapter examines differences in the proportion of Career Academy and non-Academy who rate the support they receive in the way that highly effective teachers do according to the measures developed from the Teacher Questionnaire. To do this, the analyses are based on calculations of the percentage of teachers who gave consistently "high" ratings to the group of questions used to represent a given construct illustrated in Figure 4.2. Table 4.2 lists measures for each of these constructs and presents the percentages of Academy and non-Academy teachers who gave high ratings on each of the measures.[14] The differences between these percentages indicate the extent to which the Career Academies and non-Academy environments differ in terms of the way teachers view their work and the support they receive. (Again, as noted in Chapter 3, statistical significance does not directly indicate the magnitude or importance of an estimated difference, only whether any systematic difference occurred.) All differences discussed below are statistically significant, unless otherwise noted.

In addition to discussing differences in terms of their statistical significance, we present results that are adjusted to account for differences in the measured background characteristics of teachers in the two groups. This increases the confidence one may have that the statistically significant differences presented in Table 4.2 reflect real differences between the Academy and non-Academy environments rather than between the types of teachers in each environment. However, since teachers typically volunteer to work in the Career Academies, some unmeasured characteristics of Academy and non-Academy teachers may be associated with differences in the way they perceive their work environment, job satisfaction, and effectiveness. As a result, caution should be exercised when attributing the differences presented in Table 4.2 to the Career Academies. To provide a context for interpreting these results, the findings from analyses of the Teacher Questionnaire are supplemented by findings from qualitative interviews with Academy teachers and observations of Academy activities.

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[14]The analysis conducted for this report examines differences between the ratings given by Career Academy and non-Academy teachers to each of the item groupings discussed above. This analysis was done first by comparing the average ratings for Academy and non-Academy teachers and then by comparing the proportion of Academy and non-Academy teachers with average ratings in pre-specified "high," "medium," and "low" score ranges. The findings presented in this report focus on the proportion of teachers with average ratings in the "high" range defined in the previous section of the chapter. Unless otherwise noted, these results were consistent with the results obtained using the other specifications. Also, the results were regression-adjusted to control for differences in background characteristics between Academy and non-Academy teachers.

Table 4.2

Career Academies Evaluation

Percentage of Career Academy and Non-Academy Teachers Who Indicated High Ratings on Measures of Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs

Measure	Career Academy Teachers (%)	Non-Academy Teachers (%)	Difference
Institutional supports			
Teacher collaboration			
Teachers who reported a high degree of collaboration with their colleagues to develop materials and discuss students and other school-related issues	66.3	47.1	19.2 ***
Resource adequacy			
Teachers who reported that they had adequate educational resources for their optimal success as teachers	60.5	45.3	15.3 **
Influence over areas of work			
Teachers who reported that they had considerable influence over instruction and administrative policies	69.3	40.7	28.6 ***
Interpersonal supports			
Teacher learning community			
Teachers who feel they have many opportunities to learn new things at work	67.6	39.8	27.7 ***
Emphasis on personalized attention to students			
Teachers who placed a high degree of emphasis on personalized attention to students	55.9	42.8	13.1 *
Attitudes toward job			
Job satisfaction			
Teachers who reported a high degree of satisfaction with their job	62.5	46.5	16.0 **
Self-reported effectiveness			
Teachers who feel strongly that they are making a difference in students' lives	49.8	43.6	6.2
Sample size (total=468)	65	403	

(continued)

Table 4.2 (continued)

SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: The measures listed above are summaries of teachers' ratings of several items from the Teacher Questionnaire. See Appendix C for a list of items used to construct these measures.

Teachers with average ratings of 5 or higher on the self-reported effectiveness measure were defined as giving a high rating. High ratings for the teacher learning community, emphasis on personalized attention to students, and job satisfaction measures are based on the average score among teachers with a high score on the self reported effectiveness measure. High ratings on the teacher collaboration, resource adequacy, and influence over areas of work measures are based on the average score among teachers with a high score on the teacher learning community measure.

Estimates are regression-adjusted using ordinary least squares, controlling for teachers' background characteristics, including age, gender, race/ethnicity, teachers' educational attainment level and teaching experience, and for characteristics of the high schools in which they teach.

Rounding may cause slight discrepancies in calculating differences.

A two-tailed t-test was applied to differences between Academy and non-Academy teachers. Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.

A. Academy and Non-Academy Teachers' Ratings on Measures of Institutional Supports That Promote Strong Teacher Learning Communities

Previous research on Career Academies and findings that have emerged from the qualitative research undertaken as part of this evaluation highlight the fact that Career Academies provide students and teachers with a system of institutional supports that is not widely available in the high schools where they are located.[15] For example, open-ended interviews with several Career Academy teachers provide evidence that the Academy approach can help promote the types of teacher learning communities described above. Many teachers reported, for example, that they were originally drawn to the Academies, and continue to stay in them, because of the opportunities for teamwork and mutual support that stem from working with a shared group of students and spending more time with colleagues. These teachers also reported that they felt professionally isolated prior to joining the Academy. The following comments are typical of many teachers' views:

> Teamwork is the key to this program [the Career Academy]. . . . The mutual support we can provide for each other, both professionally and personally, enables us to sustain a level of commitment to the kids that is not usually possible out in the rest of the school. . . . There is so much isolation in the rest of the school. . . . Working so closely with this group of teachers, there is a willingness to go the extra mile.

Teachers highlighted the Academy's support for their collaboration on such issues as improving students' academic performance and behavior, developing curricula, setting administrative policies, and assessing needs for additional resources. Many felt that the Career Academies enabled them to be better teachers; to focus on the individual, as well as the academic, needs of their students; and to increase their use of new materials in their classes. Several teachers credited Career Academies with revitalizing their commitment to teaching.

It is important to recognize, however, that both Academy and non-Academy teachers have at least some of the institutional supports that can promote a teacher learning community. These supports include the extent to which teachers feel they have adequate opportunities to collaborate with their colleagues, have adequate teaching materials and institutional resources, and have opportunities to influence instructional and administrative decisions. The question explored in this section of the chapter is whether the Career Academies provide more of these supports than do non-Academy environments in the same high schools. More specifically, it examines the extent to which the Career Academies provide these types of support at a level consistent with the assessments of teachers who see themselves as part of a strong teacher learning community. These levels are reflected in the high ratings for these measures defined in the previous section of the chapter. Following are the results comparing the percentage of Academy teachers who gave high ratings on the institutional supports for teacher learning communities and the percentage of non-Academy teachers who did so.

Opportunities to Collaborate with Colleagues. Teachers' collaboration with colleagues is a key part of belonging to a learning community. Opportunities for collaboration affect the extent to which teachers can develop strategies for supporting students who are having difficulty in school

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[15]AED, 1989; Fine, 1994.

and can work on curriculum and instruction issues. Analyses of individual items from the Teacher Questionnaire indicate that about three-fourths of all teachers in the sample reported that they collaborated with other teachers in at least some minimal way. Strong differences between Academy and non-Academy teachers is evident, however, in the extent to which they reported a high degree of collaboration with colleagues across a number of areas. The first item listed in Table 4.2 shows the percentage of Academy and non-Academy teachers who gave consistently "high" teachers' ratings for statements regarding their collaboration with colleagues. It shows that 66 percent of Academy teachers reported a high degree of collaboration, compared with 47 percent of non-Academy teachers. This finding supports the conclusion that collaboration among teachers is more widespread and intensive in the Academies than elsewhere in the host high schools.

Resource Adequacy. The second measure listed in Table 4.2 summarizes teachers' ratings of statements regarding the adequacy of the material resources (such as access to photocopying machines, instructional equipment) and nonmaterial resources (times and places to meet with colleagues, time to participate in professional development activities, and opportunities to address collective problems of students in the school) to support their teaching success. Although not shown in the table, nearly 80 percent of all teachers surveyed felt that at least some of these resources were adequate. There were, however, significant differences in the percentage of Academy and non-Academy teachers who judged most or all of these resources to be adequate: 61 percent of Academy teachers judged them to be adequate, compared with 45 percent of non-Academy teachers. More detailed analysis indicated that there were similar differences between Academy and non-Academy teachers in the separate ratings they gave on the adequacy of their material and nonmaterial resources.

Influence Over Areas of Work. The third item in Table 4.2 shows the percentage of Academy and non-Academy teachers who indicated that they have a high degree of influence over instructional and administrative areas of their work. Instruction-related areas include determining the content of professional development or in-service activities (such as workshops and presentations), selecting curriculum content, selecting textbooks and other instructional materials, and acquiring new equipment and materials. Administrative areas included the daily schedule, the classes they teach, the students they have in class, and disciplinary policy. Most teachers in the sample said that they had at least some influence over one or more of these areas. Academy and non-Academy teachers differed in the extent to which they reported having considerable influence over several of these areas. As indicated in Table 4.2, approximately 69 percent of Career Academy teachers reported having considerable influence over these instruction-related areas, compared with 41 percent of non-Academy teachers. More detailed analysis indicated that there were similar differences between Academy and non-Academy teachers in the separate ratings they gave on influence over instruction-related and administrative areas of their work.

B. Academy and Non-Academy Teachers' Ratings on Measures of Interpersonal Supports That Promote Strong Teacher Learning Communities

The findings just discussed indicate that Career Academies are more likely than regular high schools to provide teachers with consistent institutional supports that can promote a strong teacher learning community. The discussion now turns to the question of whether Career Academy teachers are more likely than their non-Academy colleagues to believe they have the interpersonal

supports that enable them to be part of a strong teacher learning community. Here, a strong teacher learning community is defined based on the ratings of the relevant Teacher Questionnaire items among teachers who rated themselves as very effective on the self-reported teacher effectiveness measure. Following are the results comparing the percentage of Academy teachers who gave optimal ratings on the interpersonal support items and the percentage of non-Academy teachers who did so.

Teacher Learning Community. The Career Academies Evaluation Teacher Questionnaire included several questions that provide insights into teachers' perceptions of various elements of a teacher learning community in the work environment. Both Academy and non-Academy teachers reported that they experienced some of these aspects of a teacher learning community.[16] However, when responses to the six statements above were summarized, Academy teachers were more likely than non-Academy teachers to have given high ratings to these dimensions of a teacher learning community. Table 4.2 indicates that 68 percent of Career Academies teachers reported that they were part of a strong teacher learning community compared with 40 percent of the non-Academy teachers. Their responses suggest that Career Academies provide more support for the growth of teacher learning communities than does the rest of the host high school, and that a large majority of Academy teachers see themselves as part of a strong teacher learning community.

Several findings from the field research conducted for the evaluation provide further insights into the strengths and limitations of the teacher learning communities that have evolved in the Career Academies. Many of the Career Academy teachers who were interviewed during field research visits discussed how valuable they found their Academy team meetings. These meetings provided opportunities to discuss administrative issues and issues related to particular students. It was also evident from discussion with the teachers and school administrators that it was very difficult to schedule team meetings on a regular basis (especially during the school day). Even in cases where a shared planning period was built into the daily schedule for the Academy teachers, it was often difficult to dedicate that time to team meetings, when teachers had lesson planning, paper grading, or work with individual students to do. This problem was attenuated in a few of the Academies that were able to use funding provided by the state or the school district to reduce the teaching load from five classes to four and use the additional planning period for team meetings.

Another theme that emerged from the field research was that typical team meetings tended to focus on student-related issues rather than on curriculum or instructional issues. This focus appeared to be a key factor in enhancing the "family-like atmosphere" and student-centered character of many of the Academies (discussed further in the following section). At the same time, there appeared to be a more limited focus on developing the integrated curriculum and discussing issues related to instructional practice that have been found on many strong teacher learning communities. In several of the Career Academies, these issues were the focus of summer planning meetings or in-service workshops during the school year. In general, most of the Academy teachers acknowledged that enhancing curriculum integration was the most difficult feature of the Academy approach to develop and sustain, and many ranked this area high on the list of activities for improvement.

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[16]This is indicated by the fact that over 90 percent of all the teachers in the sample agreed with one or more of the six items used to construct the "teacher learning community" variable presented in the first panel of Table 4.1.

Emphasis on Personalized Attention to Students. A central goal of the Career Academy approach — particularly its school-within-a-school organization — is to create closer relationships between teachers and students and to personalize instruction. Field interviews with Academy teachers and students, as well as observations of Academy classes and activities, indicate that the students and teachers in all of the Career Academies in this study achieve closer relationships than do those in many other high school programs. During interviews, many students cited examples of their Academy teachers extending themselves to help with both personal and school-related problems. Academy teachers also gave examples of individual and collaborative efforts they made to keep students engaged in school and to help them in other aspects of their lives. They contrasted these efforts with their experiences outside the Academy.

One Academy teacher, for example, described his efforts to get a student who was absent from school for several days to return and to stop spending time with a gang. After making several visits to the student's home and meeting with his parents, the teacher tracked the student down at a playground several miles from school. The teacher approached the student in front of his young "mini-gang" and vigorously pressed him to return to school. The student began attending regularly, although he still had difficulty completing assignments.

During a staff team meeting at another Academy, teachers were observed discussing students who were having problems. One student had run away from home; assuming that she would contact one particular Academy teacher, the parents called that teacher to ask that she send their daughter home. With the consent of both the student and her family, the teacher served as an informal mediator to help them resolve their differences sufficiently so that, eventually, the student returned home.

These examples of personalized support for students appear to be more prevalent in the Academies than elsewhere in the high school environment. In several sites, Academy teachers who also teach classes outside the Academy reported having closer relationships with Academy students than with their students in non-Academy classes. In Academy staff meetings, teachers frequently discuss students' problems, field trips, and other Academy activities that are designed to help teachers give more personalized attention to their students.

This contrast between Academy and non-Academy environments can be seen in the second measure under "Interpersonal Supports" in Table 4.2, which indicates the percentage of teachers who gave "high" ratings on statements related to the extent to which they take a personalized interest in students both in and beyond the classroom. Nearly all of the teachers in the sample — both Academy and non-Academy — attached some importance to many of these areas, as indicated by their positive responses to at least some of the items included in the measure. Career Academy teachers, however, were more likely than their non-Academy counterparts to emphasize personalized attention to students. The measure in Table 4.2 indicates that 56 percent of Academy teachers placed a high emphasis on personalized attention to students, compared with 43 percent of non-Academy teachers.[17]

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[17]Further analyses indicated that there were no statistically significant differences between Academy and non-Academy teachers who indicated "low" or "moderate" ratings on the personalized attention measure.

C. Academy and Non-Academy Teachers' Attitudes Toward Their Jobs

So far, this section of the chapter has discussed consistent and systematic differences between the experiences and work environments of Career Academy and non-Academy teachers. Each of the dimensions of teachers' experience and work environment are associated with job satisfaction and teachers' sense of whether they are effective in their work. This section of the chapter focuses on the question of whether Career Academy teachers are more satisfied with their jobs than are non-Academy teachers and whether they are more likely to feel they are effective in their work. Interestingly, while Academy teachers report higher levels of job satisfaction than do their non-Academy colleagues, the two groups of teachers were about equally likely to report a high level of effectiveness.

The job satisfaction measures listed in Table 4.2 are based on a summary of teachers' ratings of six items from the Teacher Questionnaire. Over 86 percent of the teachers in this sample (including Academy and non-Academy teachers) indicated some degree of satisfaction with their job by giving an average rating of higher than 3 out of a possible 6 on these items. As indicated in Table 4.2, however, 63 percent of the Academy teachers gave a "high" rating on the job satisfaction measure compared with 47 percent of the non-Academy teachers.

The final item in Table 4.2 summarizes teachers' ratings of statements related to their sense of effectiveness. It shows that there were only small (and not statistically significant) differences in the percentage of Academy and non-Academy teachers who rated their effectiveness "high" on this measure. About half of the Career Academy teachers indicated that they felt they were highly effective in their jobs compared with 44 percent of the non-Academy teachers. Further analysis did not reveal any systematic differences between Academy and non-Academy teachers in the individual components of the self-reported effectiveness measure.

III. Summary

The findings discussed above indicate that Career Academy teachers are more likely than their colleagues in the same high school to experience institutional supports including adequate resources, opportunities to collaborate with colleagues, and the capacity to influence administrative and instructional areas of their work. This type of support is consistent with the development of teacher learning communities, which appear to be stronger and more prevalent among Career Academy teachers than among their non-Academy counterparts. Career Academy teachers were also more likely than their non-Academy colleagues to place a high level of emphasis on personalized relationships with their students. The enhanced institutional supports, stronger teacher learning communities, and personalized relationships with students among Academy teachers are likely to account for their higher level of satisfaction with their jobs and working conditions.

Surprisingly, however, Career Academy teachers were no more likely to see themselves as being highly effective than were their non-Academy colleagues, according to the self-reported effectiveness measure used in this analysis. The conceptual model described earlier, supported by the Teacher Questionnaire data, indicates that higher levels of support, personalized attention to students, and higher job satisfaction should lead to higher levels of self-reported teacher effectiveness. There are no clear explanations for this apparent paradox. One hypothesis may be that Career

Academy teachers have different standards for "effectiveness" than do non-Academy teachers. In other words, Academy students may be performing at about the same level as non-Academy students, but the Academy teachers may be expecting more from their students and from themselves. The self-reported measure of teacher effectiveness used in this analysis may mask differences in other measures of effectiveness such as students' assessments of their school experiences or assessments of student success from school records. (Future reports from the study will examine student performance using school records data.) In addition to expecting *more* from their students, Academy teachers may also be expecting *different things* from them. For example, several Career Academy teachers felt that because of their partnerships with employers, it was important to provide Academy students with a range of interpersonal and employability skills as well as academic skills. Chapter 3 provides evidence on the extent to which Career Academy students' views of their school environment differ from the views of similar non-Academy students in the same high school.

Also, the aggregate findings presented in this chapter may mask differences across sites that may utilize the Career Academy approach's basic elements differently, or may reflect different school or district contexts that enhance or limit the support either Academy or non-Academy teachers receive. Future reports will explore differences among sites or groups of sites on a number of measures of teacher and student experiences and outcomes.

Finally, this chapter focuses only on selected aspects of the institutional and interpersonal supports that may distinguish the Career Academy approach as a promising strategy for enhancing the work of teachers and, ultimately, improving outcomes for students. Future reports from this study will focus on the role played by instructional supports and strategies within the Academies and by the program's employer partnerships and work-based learning activities.

Appendix A

Comparison of Research Groups and Response Analyses for the Student School Experience Questionnaire

This appendix describes findings from analyses that were conducted (1) to determine the comparability of students in the program and control groups who completed the Career Academies Student School Experience Questionnaire (SEQ), and (2) to determine the comparability of students who completed the SEQ and those who did not.

I. Comparison of Program and Control Groups in the SEQ Sample

The research sample for this evaluation consists of 1,952 students who were identified in the 10 sites over three school years (1993–94 through 1995–96). This group of students is referred to as the **full study sample.** The respective Career Academies determined that all of these students were eligible and appropriate for participation in their programs. Of these, 1,063 students (55 percent) were randomly assigned to the program group and were admitted to the Academies. The remaining 889 students (45 percent) were randomly assigned to the control group, were not invited to participate in the Academies, and were able to choose other options in the high school or school district.

The current report presents information about students' experiences in high school and about the extent to which the program group students are exposed to opportunities and experiences that differ from those of the control group students, who did not have access to the Academies. A key source of information about these experiences is the Career Academies Student School Experience Questionnaire, which was administered to program and control group students during their first or second year in the study.

The primary goal of the SEQ was to develop measures of students' school-related experiences, perceptions, and behaviors. The instrument development and the sampling strategy were guided by an attempt to learn as much as possible about those experiences, perceptions, and behaviors that are likely to affect longer-term outcomes for students and that were most likely to be affected by the Career Academies' key and distinct features. An important priority in administering the SEQ was to maximize the completion rate among the students in the research sample who were enrolled in a Career Academy or in a host high school.

For the purposes of this report, the SEQ was targeted to the subsample of 1,521 students in the full study sample who were enrolled in one of the participating high schools at the time the survey was administered. The remaining 431 students in the full study sample were not enrolled in one of the participating high schools and were not targeted for the SEQ.

In all, 1,406 (92 percent) of the targeted students completed the questionnaire. This group of students, who represent 72 percent of the full study sample, are called the **SEQ sample** in this report. Also, 944 (67 percent) of the students in the **SEQ sample** were completing their first year in the study and 462 (33 percent) of the students in the SEQ sample were completing their second year in the study.

In all, 791 (56 percent) of the students in the SEQ sample had been randomly assigned to the study's program group. Of these, 90 percent were enrolled in a Career Academy at the time they completed the SEQ and another 3 percent had been enrolled in an Academy for at least one semester prior to that point. Because the vast majority of program group students who completed the SEQ had their primary high school experiences in a Career Academy, they are referred to in this report as the **Career Academy group**.

In all, 615 students (44 percent) in the SEQ sample had been randomly assigned to the study's control group. Three percent of these students were inadvertently enrolled in a Career Academy at some point prior to or during the semester in which they completed the SEQ. However, because the vast majority of control group students who completed the SEQ had their primary high school experiences outside a Career Academy, they are referred to in this report as the **non-Academy group.**

A key question underlying the analyses presented in this report is: Did the sampling strategy and response rates for the SEQ generate a non-Academy group that had the same characteristics as the Career Academy group? To the extent that these two groups are similar, differences in their later experiences and behaviors, as measured by the SEQ, can be attributed more confidently to the fact that the latter group had access to the Career Academies and the non-Academy group did not. On the other hand, if there are systematic differences in the background characteristics of each group, then contrasts between them based on SEQ measures may reflect these initial differences rather than effects of the Career Academies.

The most rigorous way to determine whether there are any systematic differences between the Career Academy and non-Academy groups is to use linear regression. Table A.1 presents linear regression results measuring the likelihood of being in the Career Academy group among students who completed the SEQ. It indicates only slight differences in individual characteristics and shows that there are no systematic differences. The final entry at the bottom of the table, the p-value of the F-statistic, indicates that there is a 49 percent probability that the overall measured characteristics were the same for students in the Career Academy and non-Academy groups. This means that the SEQ sampling strategy and completion rates produced Academy and non-Academy groups of students with no systematic differences in background characteristics. Given the overall lack of difference in background characteristics between the two groups, one can be confident that differences in SEQ measures were caused by the fact that the Academy group had access to the Career Academies and the non-Academy group did not. In any discussion of such comparisons, however, it should be noted that the results should be interpreted cautiously since there may be unmeasured differences between the Career Academy group and the non-Academy group that are not taken into account with the measured background characteristics.

II. Generalizing SEQ Findings to the Full Study Sample: Reponse Analysis for the SEQ

As discussed earlier, the SEQ sample used in this report was chosen strategically to gain students' perspectives on their school-related experiences and to compare the perspectives of students who had access to the Career Academies with those of a similar group of students who did not, but who were enrolled in the same high school. Not surprisingly, a number of students from the full study sample were enrolled in neither a participating Career Academy nor one of

Table A.1

Career Academies Evaluation

Regression Coefficients for the Probability of Being in the Program Group (SEQ Sample, N = 1,406)

Variable	Parameter Estimate	Standard Error	p
Intercept	0.566900	0.013773	0.0001 ***
Female	-0.002240	0.029918	0.9403
Hispanic	-0.019178	0.058672	0.7438
Black	0.007933	0.071209	0.9113
Asian	0.041285	0.080468	0.6080
Native American	-0.070313	0.169879	0.6790
Ethnicity Missing	-0.142736	0.132005	0.2798
Age 13 or younger at random assignment	-0.119798	0.068212	0.0793 *
Age 14 at random assigment	-0.038853	0.035107	0.2686
Age 16 or older at random assignment	-0.000920	0.060694	0.9879
Age missing	-0.176273	0.296786	0.5527
8th grade at random assignment	-0.007135	0.104793	0.9457
RA Year 1994	0.003345	0.032781	0.9188
RA Year 1995	0.012749	0.044597	0.7750
Anacostia High School	0.123799	0.092677	0.1818
Lake Clifton/Eastern High School	0.036319	0.098380	0.7121
Cocoa High School	-0.057334	0.077983	0.4623
Socorro High School	0.039032	0.113789	0.7316
Westinghouse	-0.013959	0.105662	0.8949
Independence High School	0.034405	0.074310	0.6434
Silver Creek High School	0.037201	0.065841	0.5722
Valley High School	0.009412	0.056957	0.8688
Watsonville High School	-0.002852	0.054343	0.9582
Father did not finish high school	-0.040774	0.048052	0.3963
Mother did not finish high school	-0.062308	0.056442	0.2698
Both parents are working	-0.004506	0.030568	0.8828
1or 2 family moves in past 2 years	0.016636	0.030629	0.5871
3 or more family moves in past 2 years	0.000371	0.061290	0.9952
Student move information missing	-0.102909	0.146606	0.4828
2-4 school changes[a]	-0.023562	0.033861	0.4867
5 or more school changes[a]	0.156847	0.090127	0.0820 *
School changes information missing	0.251976	0.084970	0.0031 ***
English grades missing	-0.197363	0.136169	0.1475
Mostly C's in English	-0.014695	0.032382	0.6500
Mostly D's or below in English	-0.094912	0.075544	0.2092
Math grades missing	0.246692	0.177722	0.1653
Mostly C's in math	0.015915	0.031022	0.6080
Mostly D's or below in math	0.009981	0.053570	0.8522
Hours spent on homework missing	0.094198	0.173247	0.5867
Spends 2-6 hours/week on homework	0.036057	0.032691	0.2702
Spends 7 or more hours/week on homework	-0.051099	0.044884	0.2551

(continued)

Table A.1 (continued)

Variable	Parameter Estimate	Standard Error	p
Student absent missing	0.006223	0.129713	0.9617
Student absent 1-6 times	0.034609	0.034379	0.3143
Student absent 7 or more times	0.077710	0.052046	0.1357
Student late for school missing	-0.202968	0.181840	0.2645
Student late 1-6 times	-0.071783	0.033206	0.0308 **
Student late 7 or more times	-0.030360	0.053951	0.5737
Student cut class 1 or more times	-0.040996	0.039582	0.3005
Student cut class information missing	0.085072	0.208970	0.6840
Parents received warning missing	0.058774	0.142272	0.6796
Parents warned about behavior	0.026749	0.040806	0.5122
Sent to office for misbehaving missing	0.177217	0.154211	0.2507
Sent to office for misbehaving	-0.012811	0.041637	0.7584
Student overage for grade level	0.029276	0.048246	0.5441
Student plans to graduate college	0.023552	0.033620	0.4837
Student education plans missing	-0.019091	0.181375	0.9162
Student plans post college education	-0.025190	0.034916	0.4707
Teachers are interested in students	-0.004115	0.038790	0.9155
Student feels discipline is unfair	-0.005584	0.040447	0.8902
Student feels put down by teachers	-0.053247	0.037755	0.1587
Student feels unsafe at school	0.040046	0.034863	0.2509
Student has high LOCUS of control	-0.022989	0.030556	0.4520
Student has high self concept	-0.049046	0.034040	0.1499
5 plus hours/ week on extracurricular activities	-0.018481	0.030786	0.5484
Hours/day watching TV missing	-0.186218	0.182057	0.3066
1-2 hours/day watching TV	0.023644	0.048377	0.6251
2-3 hours/day watching TV	0.024174	0.048231	0.6163
More than 3 hours/day watching TV	0.054052	0.047761	0.2580
Student ever worked for pay	0.073983	0.055350	0.1816
Student ever worked for pay missing	-0.119801	0.098488	0.2240
Student worked 10 or fewer hours/ week	0.094842	0.058076	0.1027
Risk factor: single parent household	0.056039	0.038406	0.1448
Neither parent has high school diploma	0.125313	0.072883	0.0858 *
Student has sibling high school dropout	0.055438	0.041852	0.1855
Family received welfare or Food Stamps	0.000690	0.044549	0.9876
Student is unsupervised 3 or more hours/week	0.038464	0.044700	0.3897
Student has limited English proficiency	0.005611	0.058994	0.9242
Student has at least 2 risk factors	-0.094484	0.052897	0.0743 *
Sample size	1,406		
Mean of dependent variable	0.0563		
R-square	0.0546		
F-statistic	0.9960		
P value of F-statistic	0.4906		

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.
RA = random assignment.

[a]School changes excluding expected transitions.

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the host high schools. The rates at which students in the full study sample were enrolled in either of these two school environments differed by site. They also changed over time as students transferred schools or, in some cases, left high school altogether. As a result, it was expected that completion rates for the SEQ would differ by site and by the follow-up year (that is, the year, relative to when students entered the study) in which it was administered.

Table A.2 shows the response rates by research group status, grade level, and site. It shows that students in the program group were somewhat more likely to have completed the SEQ than students in the control group, as were students in their 9th- or 10th-grade year compared with those in their 11th-grade year. There were more dramatic differences among the sites, with particularly low SEQ completion rates in Washington, D.C., Baltimore, and Pittsburgh.

These differences raise another important question for interpreting the findings from the analyses presented in this report: Are students who completed the SEQ representative of the full study sample? This question is important because its answer will determine the extent to which findings from the 1,406 students who completed the SEQ can be generalized to the 1,952 students in the full study sample. In other words, average responses to SEQ items may be different from what they would have been if we tried and succeeded in surveying all students in the research sample. For example, some of the students whom we did not attempt to survey had dropped out of high school altogether. It is highly likely that their school-related experiences (if any) would be very different from those of students we attempted to survey (all of whom were enrolled in the Career Academies or host high schools). The remaining students who were not contacted for the SEQ were enrolled in other high schools that may have been different from the Career Academies or host high schools. Finally, other students were identified as being enrolled in an Academy or host high school, but did not complete an SEQ for a variety of reasons (e.g., absent on the days of administration, chronically absent, in the process of withdrawing from the host high school). To the extent that these reasons may be associated with their school-related experiences, their responses to the SEQ questions may have been different from those of students in the SEQ sample. For all of these reasons it is important to examine differences in the characteristics of students who completed the SEQ and those who did not.

Table A.3 presents linear regression results measuring the extent to which the average characteristics of the 1,406 students who completed the SEQ differed from the average characteristics of the 546 students who were not targeted for or did not complete the SEQ. The p-value of the F-statistic indicates that there is strong evidence that there were systematic differences between those who completed the SEQ and those who did not. For example, those who completed the SEQ were significantly less likely to be from a single-parent household, to have changed school multiple times, to have been absent or cut class several times, to have low grades in English, and to be over-age for grade level. Also, program group students were more likely to have completed the SEQ than were control group students. However, as noted earlier, there were no differences between program and control group students who completed the SEQ.

In short, this analysis indicates that the sample of 1,406 students who completed an SEQ are not representative of the full sample of 1,952 students. Thus, caution should be exercised when attempting to generalize findings from the SEQ analysis to the full research sample. However, since students who completed the SEQ make up a high percentage of the full study sample, the findings are representative of a broad group of the sample.

Table A.2

Career Academies Evaluation

Response Analysis for the Student School Experience Questionnaire by Research Group, Site, and Grade Level

Measure	Full Study Sample			Sample Targeted for SEQ	
	Sample Size	Targeted for SEQ (%)	Completed SEQ (%)	Sample Size	Completed SEQ (%)
Full sample	1,952	77.9	72.0	1,521	92.4
Research group status					
Program	1,063	78.6	74.4	835	94.7
Control	889	77.2	69.2	686	89.7
Site					
Academy of Finance, Baltimore, Md.	260	78.8	61.9	205	78.5
Health Professions Academy, Socorro, Tex.	199	85.9	85.9	171	100.0
Academy of Travel and Tourism, Miami Beach, Fla.	312	75.6	72.1	236	95.3
Electronics Academy, San Jose, Calif. (I)	120	80.8	75.8	97	93.8
Electronics Academy, San Jose, Calif. (SC)	169	84.6	77.5	143	91.6
Global Business Academy, Santa Ana, Calif.	283	80.9	79.9	229	98.7
Watsonville Video Academy, Watsonville, Calif.	297	81.8	78.1	243	95.5
Public Service Academy, Washington, D.C.	120	50.0	44.2	60	88.3
Academy for Aerospace Technology, Cocoa, Fla.	126	67.5	63.5	85	94.1
Business and Finance Academy, Pittsburgh, Pa.	66	78.8	54.5	52	69.2
Grade level at SEQ administration					
Grade 9	192	90.1	87.0	173	96.5
Grade 10	1,248	79.9	72.2	997	90.4
Grade 11	512	68.6	66.0	351	96.3

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire (SEQ).

Table A.3

Career Academies Evaluation

Regression Coefficients for the Probability of Completing the SEQ
(Full Study Sample, N = 1,952)

Variable	Parameter Estimate	Standard Error	p
Intercept	72.028692	0.945347	0.0001 ***
Program group dummy variable	4.751088	1.939258	0.0144 **
Female	0.195294	2.101846	0.9260
Hispanic	-1.222055	4.087887	0.7650
Black	4.370154	4.850222	0.3677
Asian	-1.320583	5.741528	0.8181
Native American	12.893644	12.334958	0.2960
Ethnicity Missing	3.420954	8.771546	0.6966
Age 13 or younger at random assignment	-5.263112	4.954374	0.2882
Age 14 at random assigment	-2.327368	2.517139	0.3553
Age 16 or older at random assignment	0.282372	4.018590	0.9440
Age missing	-5.90877	21.411445	0.7826
8th grade at random assignment	21.999615	6.861088	0.0014 ***
RA Year 1994	16.444595	2.358617	0.0001 ***
RA Year 1995	14.943649	3.214557	0.0001 ***
Anacostia High School	-34.196556	5.807285	0.0001 ***
Lake Clifton/Eastern High School	-30.139903	6.373839	0.0001 ***
Cocoa High School	-11.970891	5.292783	0.0238 **
Socorro High School	-9.905676	7.492530	0.1863
Westinghouse	-18.978718	6.933411	0.0063 ***
Independence High School	11.623377	5.317484	0.0289 **
Silver Creek High School	9.935157	4.671996	0.0336 **
Valley High School	7.242089	4.082718	0.0763 *
Watsonville High School	4.889573	3.853045	0.2046
Father did not finish high school	3.202827	3.357961	0.3403
Mother did not finish high school	-4.53102	3.894600	0.2448
Both parents are working	-0.413841	2.182505	0.8496
1or 2 family moves in past 2 years	0.768079	2.170251	0.7234
3 or more family moves in past 2 years	-2.697711	4.084768	0.5091
Student move information missing	-0.150945	10.200783	0.9882
2-4 school changes[a]	-5.53687	2.375170	0.0199 **
5 or more school changes[a]	-20.166527	5.367936	0.0002 ***
School changes information missing	2.177611	6.142784	0.7230
English grades missing	-12.495278	9.227808	0.1759
Mostly C's in English	-5.192393	2.244080	0.0208 **
Mostly D's or below in English	-13.397561	4.808865	0.0054 ***
Math grades missing	8.607269	13.042890	0.5094
Mostly C's in math	-3.417817	2.197883	0.1201
Mostly D's or below in math	-6.64959	3.562946	0.0622 *
Hours spent on homework missing	-1.918919	12.811748	0.8810
Spends 2-6 hours/week on homework	-2.207873	2.304767	0.3382
Spends 7 or more hours/week on homework	-1.405358	3.227469	0.6633

(continued)

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Table A.3 (continued)

Variable	Parameter Estimate	Standard Error	p
Student absent missing	1.113113	9.282679	0.9046
Student absent 1-6 times	0.529556	2.499618	0.8322
Student absent 7 or more times	-6.142642	3.566299	0.0852 *
Student late for school missing	-14.790145	12.343015	0.2310
Student late 1-6 times	-3.039494	2.405644	0.2066
Student late 7 or more times	-3.188292	3.715121	0.3909
Student cut class 1 or more times	-9.629067	2.633998	0.0003 ***
Student cut class information missing	13.734152	14.611811	0.3474
Parents received warning missing	16.040134	10.241847	0.1175
Parents warned about behavior	-5.360658	2.752814	0.0516 *
Sent to office for misbehaving missing	-12.239878	11.646866	0.2934
Sent to office for misbehaving	0.077684	2.836526	0.9782
Student overage for grade level	-7.078155	3.281364	0.0311 **
Student plans to graduate college	2.090707	2.343060	0.3723
Student education plans missing	-19.715288	11.966601	0.0996 *
Student plans post college education	3.816453	2.532772	0.1320
Teachers are interested in students	-0.921701	2.666714	0.7297
Student feels discipline is unfair	-0.942686	2.760730	0.7328
Student feels put down by teachers	2.193256	2.635161	0.4053
Student feels unsafe at school	-5.839594	2.397218	0.0149 **
Student has high LOCUS of control	-0.693708	2.177112	0.7500
Student has high self concept	-1.154732	2.444688	0.6367
5 plus hours/ week on extracurricular activities	-2.490947	2.554102	0.3296
Hours/day watching TV missing	20.502396	13.943414	0.1416
1-2 hours/day watching TV	2.453447	3.413547	0.4724
2-3 hours/day watching TV	2.907775	3.403874	0.3931
More than 3 hours/day watching TV	4.886178	3.367950	0.1470
Student ever worked for pay	7.987046	3.633991	0.0281 **
Student ever worked for pay missing	-3.068939	6.724247	0.6482
Student worked 10 or fewer hours/ week	6.400629	3.804215	0.0926 *
Risk factor: single parent household	-7.057854	2.654951	0.0079 ***
Neither parent has High School Diploma	2.563035	5.084624	0.6143
Student has sibling high school dropout	-0.657074	2.877355	0.8194
Family received welfare or food stamps	1.018512	3.105507	0.7430
Student is unsupervised 3 or more hours/week	2.058629	3.183530	0.5179
Student has limited English proficiency	-3.2459	4.231171	0.4431
Student has at least 2 risk factors	0.464764	3.712096	0.9004
Sample size	1,952		
Mean of dependent variable	72.02870		
R-square	0.16920		
F-statistic	4.89000		
P-value of F-statistic	0.00010		

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent.
RA = random assignment.

[a]School changes excluding expected transitions.

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Appendix B

Table B.1

Career Academies Evaluation

Items from the Student School Experience Questionnaire Used to Create Indicators of Students' Perceptions of Interpersonal Supports, Motivational Processes, and School Engagement

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INTERPERSONAL SUPPORTS

A. TEACHER SUPPORT

Personalized Attention from Teachers (Cronbach's Alpha = .70)

SQ1. How much do you agree that the following statements describe your experience at school this year? (Scale: 1 = "Strongly Disagree" to 4 = "Strongly Agree")

- b. In class I often feel "put down" by my teachers.
- f. Teachers are interested in students. (This item was reverse-coded for consistency of scaling.)

SQ11. How many of your teachers (except for gym class)...
(Scale: 1 = "None"; 2 = "One"; 3 = "Two or Three"; 4 = "Most"; 5 = "All")

- e. Only care about the best students in the class? (This item was reverse-coded for consistency of scaling.)

SQ12. How many of your teachers (except for gym class)...
(Scale: 1 = "None"; 2 = "One"; 3 = "Two or Three"; 4 = "Most"; 5 = "All")

- a. Would make sure you got help if you were having personal problems?
- c. Go out of their way to make sure everyone understands what's being covered in class?
- d. Care about your future after high school?

SQ15. How likely do you think it is that one of your current teachers will contact your parents if you...
(Scale: 1 = "Very Likely" to 4 = "Very Unlikely")

- d. Do a really good job on an assignment? (This item was reverse-coded for consistency of scaling.)

SQ26. This school year, has your teacher given you help or advice in the following areas:
(Scale: Yes/No)

- a. Extra help with schoolwork?
- b. Help with other problems at school?
- c. Help with personal problems?
- d. Advice about careers or education after high school?
- e. Advice or help with finding a job?

(continued)

Table B.1 (continued)

Teacher Expectations (Cronbach's Alpha = .78)

SQ11. How many of your teachers (except for gym class)...
(Scale: 1 = "None"; 2 = "One"; 3 = "Two or Three"; 4 = "Most"; 5 = "All")

d. Expect you to do the best work you can?

SQ13. Different teachers emphasize different things. How many of your teachers (except for gym class) really care whether you...
(Scale: 1 = "None"; 2 = "One"; 3 = "Two or Three"; 4 = "Most"; 5 = "All")

a. Try as hard as you can?
c. Feel really challenged to use your mind?

SQ14. How many of your teachers (except for gym class) really care whether you...
(Scale: 1 = "None"; 2 = "One"; 3 = "Two or Three"; 4 = "Most"; 5 = "All")

c. Can write and speak well?
d. Really understand the material rather than just giving an answer?

B. PEER SUPPORT

Peer Engagement (Cronbach's Alpha = .75)

SQ16. Different students care about different things. Thinking about the students with whom you take most of the classes in your program at school this year, how many...

(Scale: 1 = "Hardly Any or None"; 2 = "Some"; 3 = "Around Half"; 4 = "Most"; 5 = "All or Almost All")

a. Think it is important to come to school every day?
b. Are bored in school? (This item was reverse-coded for consistency of scaling.)
c. Pay attention to the teacher in class?
d. Give up if an assignment is too hard? (This item was reverse-coded for consistency of scaling.)
e. Try to get good grades?
f. Just come to school to have a good time? (This item was reverse-coded for consistency of scaling.)
g. Think doing well in school will pay off later?
h. Think it's cool to cut class? (This item was reverse-coded for consistency of scaling.)

(continued)

Table B.1 (continued)

Peer Collaboration (Cronbach's Alpha = .78)

SQ17. How many of the students with whom you take most of your classes...
(Scale: 1 = "Hardly Any or None"; 2 = "Some"; 3 = "Around Half"; 4 = "Most"; 5 = "All or Almost All")

b. Have you worked with on a school project or homework?
c. Do you talk to about schoolwork and what happens in class?
d. Would help you if you didn't understand something in class?
e. Have you talked to about plans for after high school?
f. Would try to help if you were having personal problems?

SQ18. How true are the following statements about the students with whom you take most of the classes in your program at school this year?
(Scale: 1 = "Not At All True" to 4 = "Very True")

a. My classmates and I help each other with our schoolwork.
c. My classmates and I rely on each other to get through difficult assignments.

SQ26. This school year, has a classmate or a friend given you help or advice in the following areas:
(Scale: Yes/No)

a. Extra help with schoolwork?
b. Help with other problems at school?
c. Help with personal problems?
d. Advice about careers or education after high school?
e. Advice or help with finding a job?

C. PARENT SUPPORT

Parent School Contact (Cronbach's Alpha = .77)

SQ32. During the current school year, how often have either of your parents or guardians...
(Scale: 1 = "Never"; 2 = "Once or Twice"; 3 = "3-6 Times"; 4 = "Once A Month or More"; 5 = "I Don't Know")

a. Attended a school meeting?
b. Spoken with one of your teachers (either by phone or in person)?
c. Spoken with a counselor (either by phone or in person)?
d. Attended a school event in which students took part?
e. Acted as a volunteer at your school?

(continued)

Table B.1 (continued)

Parent Involvement (Cronbach's Alpha = .55)

SQ8. How true are the following statements for you this school year?
(Scale: 1 = "Not At All True" to 4 = "Very True")

i. I don't talk to my parents about school. (This item was reverse-coded for consistency of scaling.)
c. My parents ask me about what happens at school.

SQ26. This school year, has a parent or family member given you help or advice in the following areas:
(Scale: Yes/No)

a. Extra help with schoolwork?
b. Help with other problems at school?
c. Help with personal problems?
d. Advice about careers or education after high school?
e. Advice or help with finding a job?

MOTIVATIONAL PROCESSES

Intrinsic Motivation[4]

SQ22. Different students have different reasons for coming to school. When you come to school, how important are the following reasons?
(Scale: 1 = "Not A Reason At All" to 4 = "A Very Important Reason")

a. I like school.
c. I'll get in trouble if I don't come to school. (This item was reverse-coded for consistency of scaling.)
d. I'm learning interesting things in school.
e. I'll let my classmates down if I'm not there to help with class projects.
f. My teachers will notice if I don't show up. (This item was reverse-coded for consistency of scaling.)

(continued)

Perceived Relevance of School Work (Cronbach's Alpha = .67)

SQ7. How true are the following statements about your experience in school this year? (Scale: 1 = "Not At All True" to 4 = "Very True")

- d. I am learning a lot in school.
- f. I really don't see the point of most of what I'm learning in school. (This item was reverse-coded for consistency of scaling.)

SQ29. How true are the following statements about your experience in school this year? (Scale: 1 = "Not At All True" to 4 = "Very True")

- a. If I decide to go to college, I'm getting a good preparation in high school.
- b. When I finish high school, I won't have any skills that I can use in a job. (This item was reverse-coded for consistency of scaling.)
- c. The things I'm learning in high school make me want to go on and learn more later.

SELF-REPORTED ENGAGEMENT

Behavioral Engagement (Cronbach's Alpha = .66)

SQ7. How true are the following statements about your experience in school this year? (Scale: 1 = "Not At All True" to 4 = "Very True")

- h. I often come to class unprepared. (This item was reverse-coded for consistency of scaling.)

SQ8. How true are the following statements for you this school year? (Scale: 1 = "Not At All True" to 4 = "Very True")

- d. I pay attention in class.
- e. I try to learn as much as I can about my school subjects.
- j. When I'm in class, I usually think about other things. (This item was reverse-coded for consistency of scaling.)

SQ35. In an average week, about how much time do you spend on homework? (Scale: 1 = "None" to 8 = "Over 15 hours a week")

Emotional Engagement (Cronbach's Alpha = .66)

SQ25. How true are the following feelings for you this year? When I'm in school, I feel: (Scale: 1 = "Not At All True" to 4 = "Very True")

- a. Happy
- c. Angry (This item was reverse-coded for consistency of scaling.)
- d. Bored (This item was reverse-coded for consistency of scaling.)
- e. Good

(continued)

Table B.1 (continued)

Psychological Engagement (Cronbach's Alpha = .75)

SQ21. How important is it to you personally to... (Scale: 1 = "Not At All Important" to 4 = "Very Important")

a. Come to school every day?
b. Get good grades?
c. Graduate from high school no matter what?

SOURCE: MDRC calculations from Career Academies Evaluation Student School Experience Questionnaire.

NOTES: The number and letter before each item indicates its location in the Career Academies Student School Experience Questionnaire, which is available from MDRC.

Cronbach's Alpha is a statistical measure of an indicator's reliability in terms of the extent to which items used to create a scale are correlated with each other. Indicators with alpha values of .70 or higher are considered to be highly reliable.

[a]The summary measure created from these items was calculated using the bottom weighted average: ((SQ22AR + SQ22DR + (.5*SQ22ER) - (.5*SQ22FR) - SQ22CR) / 4) + 1.875.

Table B.2

Career Academies Evaluation

Correlations Among Factors Related to Student's Motivational Processes and School Engagement

Measure	Intrinsic Motivation	Perceived Relevance of School Work	Self-Reported Engagement
Teacher support	.22 ***	.51 ***	.44 ***
Peer support	.30 ***	.39 ***	.40 ***
Parent support	.12 ***	.27 ***	.22 ***
Intrinsic motivation			.46 ***
Perceived relevance of schoolwork			.60 ***

Parameter Estimates and Standard Errors of Estimates from Regression Analysis of Factors Related to Student's Motivational Processes and School Engagement

Measure	Intrinsic Motivation	Perceived Relevance of School Work	Self-Reported Engagement
Teacher support	.10 ***	.44 ***	.09 ***
	(.03)	(.03)	(.02)
Peer support	.23 ***	.20 ***	.08 ***
	(.03)	(.03)	(.02)
Parent support	.02	.08 ***	.01
	(.02)	(.02)	(.01)
Intrinsic motivation			.19 ***
			(.02)
Perceived relevance of schoolwork			.26 ***
			(.02)
R square	.10	.29	.46

SOURCE: MDRC calculations from the Career Academies Evaluation Student School Experience Questionnaire.

NOTES: Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent. Standard errors are given in parentheses.

Appendix C

Table C.1

Career Academies Evaluation

Items from the Teacher Questionnaire Used to Create Indicators of Teachers' Perceptions of Institutional Supports, Interpersonal Supports, and Attitudes Toward Their Jobs

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SUPPORT FOR WORK

Teacher Collaboration (Cronbach's Alpha = .86)

11. For [your most typical class], indicate the extent to which you agree or disagree with each statement. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

    a. I work with other teachers to develop materials and activities for this class.
    b. I meet regularly with other teachers to discuss different ways of teaching this class.
    c. I meet regularly with other teachers to discuss problems I have with students in this class.
    d. I make a conscious effort to coordinate the content of this class with teachers in other subject area departments.

Resource Adequacy (Cronbach's Alpha = .87)

15. Please indicate the extent to which you judge resources in your current job to be adequate or inadequate for your optimal success as a teacher. (Scale: 1 = "Very Inadequate" to 5 = "Very Adequate") [Respondents were also given the opportunity to answer this question with "Not relevant to my success." Teachers who gave this response were not included in the calculation for this indicator.]

    a. A place to get together with colleagues.
    b. Capacity to photocopy instructional materials for students in my classes.
    c. Time to meet with colleagues.
    d. Release time to participate in conferences and workshops.
    e. Instructional equipment for my classroom.
    f. Opportunities to address collective problems of students in the school (e.g., race relations, academic motivation, absenteeism, etc.).
    g. Opportunities to discuss specific students with my colleagues.

Influence Over Areas of Work (Cronbach's Alpha = .79)

13. Using the scale provided, indicate how much influence you feel you have over the following areas of your work. (Scale: 1 = "None" to 6 = "A Great Deal")

    a. Determining the content of your professional development or in-service activities.
    b. Selecting content, topics, and skills you teach.
    c. Selecting your textbooks and other instructional materials.
    h. Acquiring new equipment, materials, or other resources for use in your classes.
    d. Determining which classes you teach.
    e. Determining which students you will have in your classes.
    f. Determining the daily schedule.
    g. Setting disciplinary policies for students.

(continued)

Teacher Learning Community (Cronbach's Alpha = .80)

14. Using the scale provided, indicate how strongly you agree or disagree with each of the following statements regarding your current job. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

a. I feel that I have many opportunities to learn new things in my present job.
b. I work closely with other teachers who support my efforts to try out new ideas.
d. I work closely with other teachers to solve problems; not just talk about them.
f. My job provides me with continuing professional stimulation and growth.
g. Most other teachers with whom I work are continually learning and seeking new ideas.
h. Most other teachers with whom I work seldom evaluate their curriculum and classroom activities. [This item was reverse-coded for consistency of scaling.]

Emphasis on Personalized Attention to Students (Cronbach's Alpha = .76)

12. The statements below concern your goals for students' educational outcomes and for your relationships with students. Using the scale provided, indicate how strongly you agree or disagree with each statement as it applies to your own teaching philosophy and practice. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

b. I believe that growth in students' self-esteem is as important as their academic achievement.
c. It is important that I spend time in class talking about issues related to students' personal development even if it takes time away from covering subject matter content.
e. I make a conscious effort to show my students that I care about them.
f. It is important for me to know something about my students' families.
g. I feel that I should be accessible to students even if it means meeting with them before or after school, during my prep or free period, etc.
h. I believe that teachers should keep their relationships with students in their classes focused strictly on course work. [This item was reverse-coded for consistency of scaling.]

Job Satisfaction (Cronbach's Alpha = .80)

14. Using the scale provided, indicate how strongly you agree or disagree with each of the following statements regarding your current job. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

c. I think that the stresses and disappointments involved in teaching at this school aren't really worth it. [This item was reverse-coded for consistency of scaling.]
i. If I could get a higher-paying job, I'd leave teaching in a minute. [This item was reverse-coded for consistency of scaling.]
j. Overall, I am satisfied with my job at least most of the time.

16. How satisfied are you with each of the following aspects of your current job? (Scale: 1 = "Very Dissatisfied" to 6 = "Very Satisfied")

a. Intellectual challenge
b. School learning environment
c. Enforcement of student disciplinary policies

(continued)

Table C.1 (continued)

Self-Reported Effectiveness (Cronbach's Alpha = .76)

12. The statements below concern your goals for students' educational outcomes and for your relationships with students. Using the scale provided, indicate how strongly you agree or disagree with each statement as it applies to your own teaching philosophy and practice. (Scale: 1 = "Strongly Disagree" to 6 = "Strongly Agree")

i. I feel that it's part of my responsibility to keep students from dropping out of school.
j. If I try really hard, I can get through to even the most difficult or unmotivated students.
k. By trying a different teaching method I can significantly affect a student's achievement.
l. There is really very little I can do to insure that most of my students achieve at a high level. [This item was reverse-coded for consistency of scaling.]
m. I am certain I am making a difference in the lives of my students.

SOURCE: MDRC calculations from Career Academies Evaluation Teacher Questionnaire.

NOTES: The number and letter before each item indicates its location in the Career Academies Evaluation Teacher Questionnaire, which is available from MDRC.

Cronbach's Alpha is a statistical measure of an indicator's reliability in terms of the extent to which items used to create a scale are correlated with each other. Indicators with alpha values of .70 or higher are considered highly reliable.

Indicators were created by calculating teachers' average response to the items listed.

Table C.2

Career Academies Evaluation

Correlations Among Factors Related to Teachers' Sense of Effectiveness

Measure	Teacher Learning Community	Personalized Attention to Students	Job Satisfaction	Sense of Effectiveness
Institutional support components				
Teacher collaboration	.53 ***	.26 ***	.32 ***	.24 ***
Resource adequacy	.48 ***	.26 ***	.54 ***	.24 ***
Influence over work	.52 ***	.29 ***	.49 ***	.29 ***
Teacher learning community		.30 ***	.63 ***	.35 ***
Personalized attention to students			.31 ***	.53 ***
Job satisfaction				.37 ***
Sense of effectiveness				

Parameter Estimates and Standard Errors of Estimates from Regression Analysis of Factors Related to Teachers' Sense of Effectiveness

Measure	Teacher Learning Community	Personalized Attention to Students	Job Satisfaction	Sense of Effectiveness
Institutional supports	.74 ***	.30 ***	.29 ***	.02
	(.04)	(.04)	(.05)	(.05)
Teacher learning community			.46 ***	.10 *
			(.05)	(.05)
Personalized attention to students			.12 **	.52 ***
			(.05)	(.05)
Job satisfaction				.15 ***
				(.04)
R square	.43	.12	.45	.34

SOURCE: MDRC calculations from the Career Academies Evaluation Teacher Questionnaire.

NOTES: Statistical significance levels are indicated as *** = 1 percent; ** = 5 percent; * = 10 percent. Standard errors are given in parentheses.

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Books and Monographs

Reforming Welfare with Work (Ford Foundation). Monograph. 1987. Judith Gueron. A review of welfare-to-work initiatives in five states.

From Welfare to Work (Russell Sage Foundation). Book. 1991. Judith Gueron, Edward Pauly. A synthesis of research findings on the effectiveness of welfare-to-work programs. Chapter 1, which is the summary of the book, is also published separately by MDRC.

Five Years After: The Long-Term Effects of Welfare-to-Work Programs (Russell Sage Foundation). Book. 1995. Daniel Friedlander, Gary Burtless. An analysis of five-year follow-up data on four welfare-to-work programs.

After AFDC: Welfare-to-Work Choices and Challenges for States. Book. 1997. Dan Bloom. A summary and synthesis of lessons derived from studies of welfare reform programs.

ReWORKing Welfare: Technical Assistance for States and Localities

After AFDC: Welfare-to-Work Choices and Challenges for States. See under Books and Monographs.

Changing to a Work First Strategy: Lessons from Los Angeles County's GAIN Program for Welfare Recipients. 1997. Evan Weissman.

Work First: How to Implement an Employment-Focused Approach to Welfare Reform. 1997. Amy Brown.

Working Papers

Working Papers related to a specific project are listed under that project.

Learning from the Voices of Mothers: Single Mothers' Perceptions of the Trade-offs Between Welfare and Work. 1993. LaDonna Pavetti.

Unpaid Work Experience for Welfare Recipients: Findings and Lessons from MDRC Research. 1993. Thomas Brock, David Butler, David Long.

From Welfare to Work Among Lone Parents in Britain: Lessons for America. 1996. James Riccio.

Papers for Practitioners

Assessing JOBS Participants: Issues and Trade-offs. 1992. Patricia Auspos, Kay Sherwood.

Linking Welfare and Education: A Study of New Programs in Five States. 1992. Edward Pauly, David Long, Karin Martinson.

Improving the Productivity of JOBS Programs. 1993. Eugene Bardach.

Reports and Other Publications

The National Evaluation of Welfare-to-Work Strategies

An evaluation of welfare-to-work programs launched under the Job Opportunities and Basic Skills Training (JOBS) provisions of the Family Support Act of 1988.

Adult Education for People on AFDC — A Synthesis of Research. (U.S. Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation [HHS, ASPE]). 1995. Edward Pauly.

Evaluating Two Welfare-to-Work Program Approaches: Two-Year Findings on the Labor Force Attachment and Human Capital Development Programs in Three Sites (HHS, ASPE). 1997. Gayle Hamilton, Thomas Brock, Mary Farrell, Daniel Friedlander, Kristen Harknett.

The Cross-State Study of Time-Limited Welfare

An examination of the implementation of some of the first state-initiated time-limited welfare programs.

Implementing Time-Limited Welfare: Early Experiences in Three States. 1995. Dan Bloom, David Butler.

The View from the Field: As Time Limits Approach, Welfare Recipients and Staff Talk About Their Attitudes and Expectations. 1997. Amy Brown, Dan Bloom, David Butler.

Florida's Family Transition Program

A study of Florida's time-limited welfare program.

The Family Transition Program: Implementation and Early Impacts of Florida's Initial Time-Limited Welfare Program. 1997. Dan Bloom, James Kemple, Robin Rogers-Dillon.

The Minnesota Family Investment Program (MFIP)

An evaluation of Minnesota's welfare reform initiative.

Making Welfare Work and Work Pay: Implementation and 18-Month Impacts of the Minnesota Family Investment Program. 1997. Cynthia Miller, Virginia Knox, Patricia Auspos, Jo Anna Hunter-Manns, Alan Orenstein.

Canada's Self-Sufficiency Project (SSP)

A test of the effectiveness of a temporary earnings supplement on the employment and welfare receipt of public assistance recipients. Reports on the Self-Sufficiency Project are available from: Social Research and Demonstration Corporation (SRDC), 275 Slater St., Suite 900, Ottawa, Ontario K1P 5H9, Canada. Tel.: 613-237-4311; Fax: 613-237-5045. The reports are also available from MDRC.

When Work Pays Better Than Welfare: A Summary of the Self-Sufficiency Project's Implementation, Focus Group, and Initial 18-Month Impact Reports (Social Research and Demonstration Corporation). 1996.

The GAIN Evaluation

An evaluation of California's Greater Avenues for Independence (GAIN) Program, the state's JOBS program.

GAIN: Basic Education in a Welfare-to-Work Program. 1994. Karin Martinson, Daniel Friedlander.
GAIN: Benefits, Costs, and Three-Year Impacts of a Welfare-to-Work Program. 1994. James Riccio, Daniel Friedlander, Stephen Freedman.

The Parents' Fair Share Demonstration

A demonstration aimed at reducing child poverty by increasing the job-holding, earnings, and child support payments of unemployed, noncustodial parents (usually fathers) of children receiving public assistance.

Matching Opportunities to Obligations: Lessons for Child Support Reform from the Parents' Fair Share Pilot Phase. 1994. Dan Bloom, Kay Sherwood.

The National Supported Work Demonstration

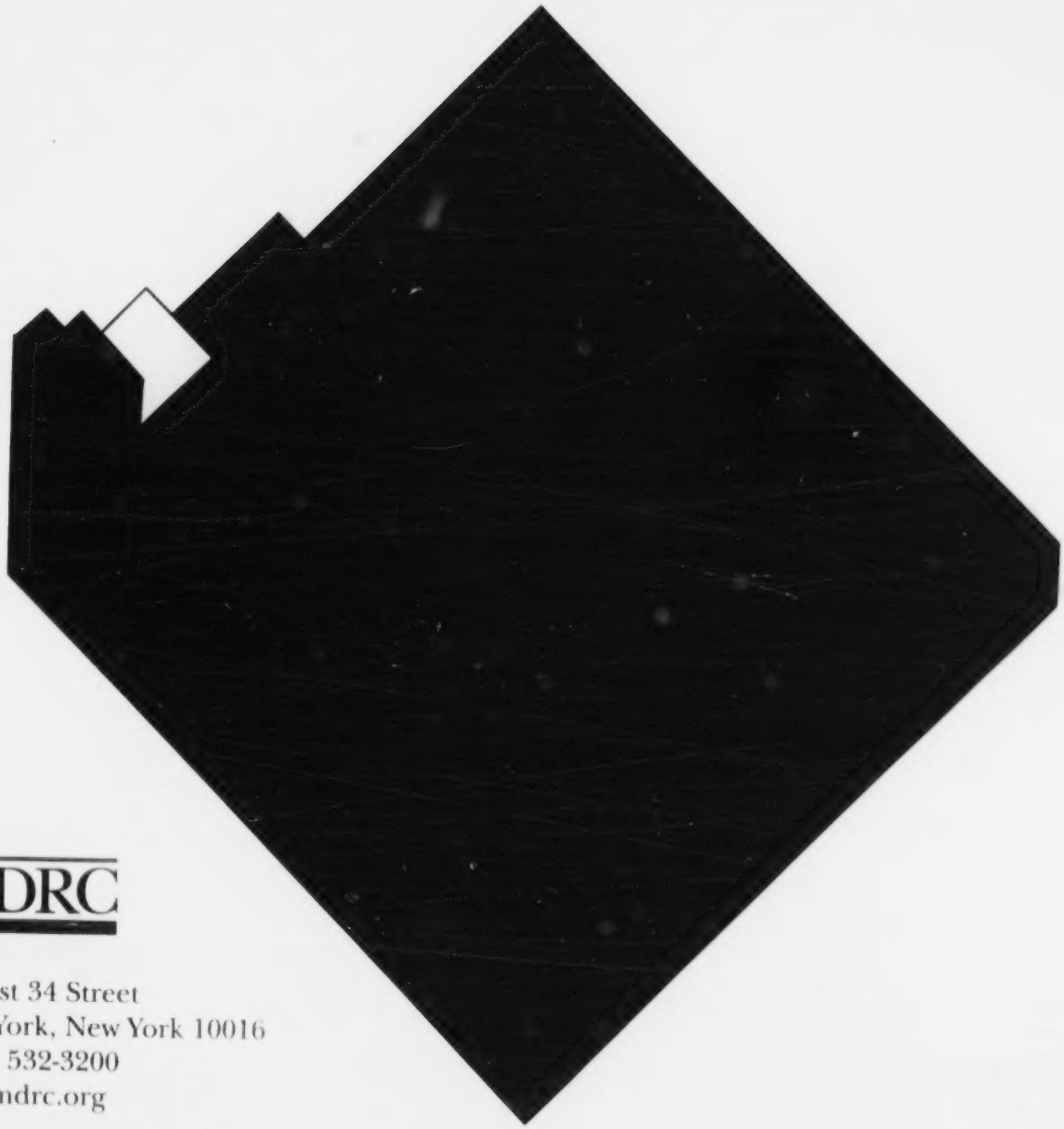
A test of a transitional work experience program for four disadvantaged groups.

Summary and Findings of the National Supported Work Demonstration. 1980. MDRC Board of Directors.

About MDRC

The Manpower Demonstration Research Corporation (MDRC) is a nonprofit social policy research organization founded in 1974 and located in New York City and San Francisco. Its mission is to design and rigorously field-test promising education and employment-related programs aimed at improving the well-being of disadvantaged adults and youth, and to provide policymakers and practitioners with reliable evidence on the effectiveness of social programs. Through this work, and its technical assistance to program administrators, MDRC seeks to enhance the quality of public policies and programs. MDRC actively disseminates the results of its research through its publications and through interchanges with a broad audience of policymakers and practitioners; state, local, and federal officials; program planners and operators; the funding community; educators; scholars; community and national organizations; the media; and the general public.

Over the past two decades — working in partnership with more than forty states, the federal government, scores of communities, and numerous private philanthropies — MDRC has developed and studied more than three dozen promising social policy initiatives.



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